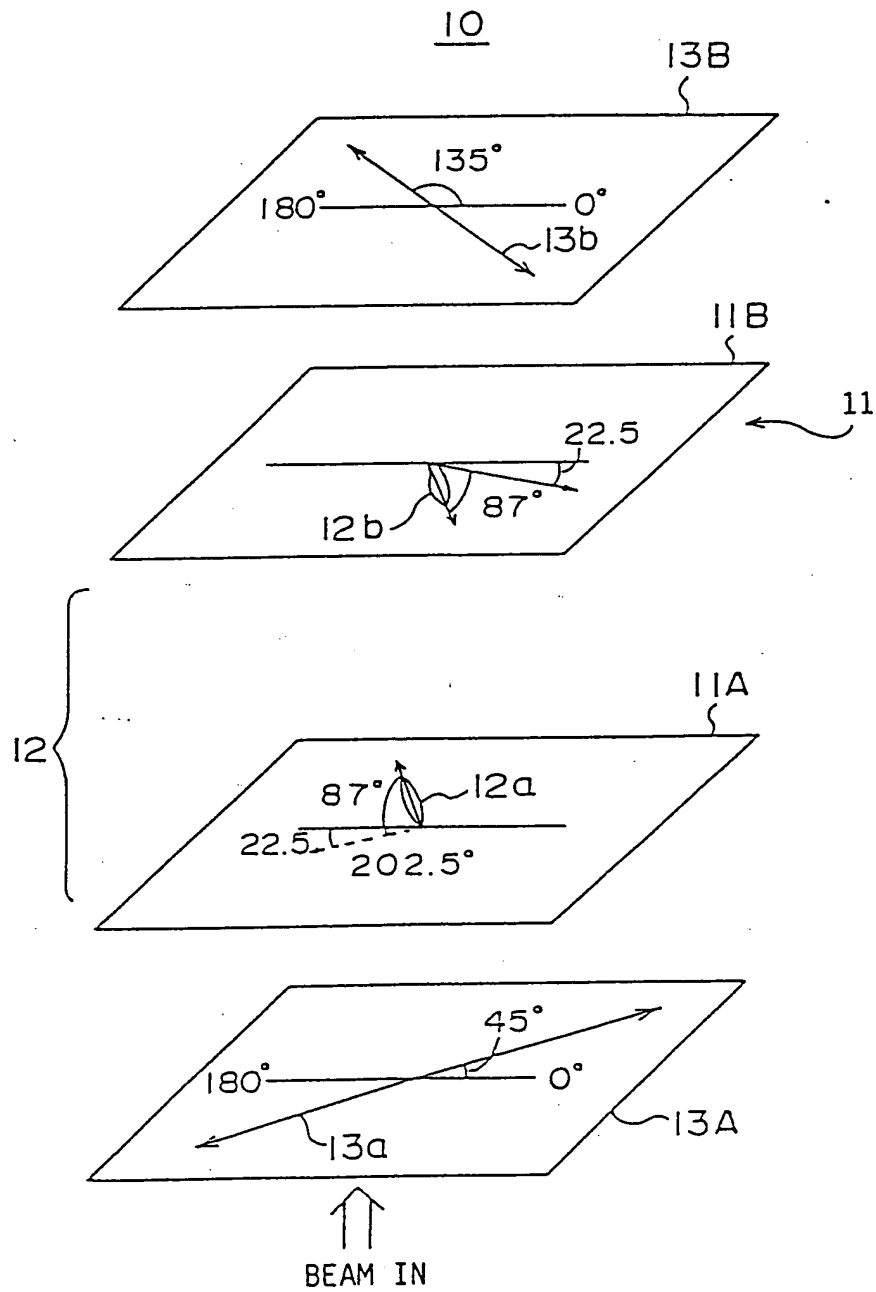


FIG. 1



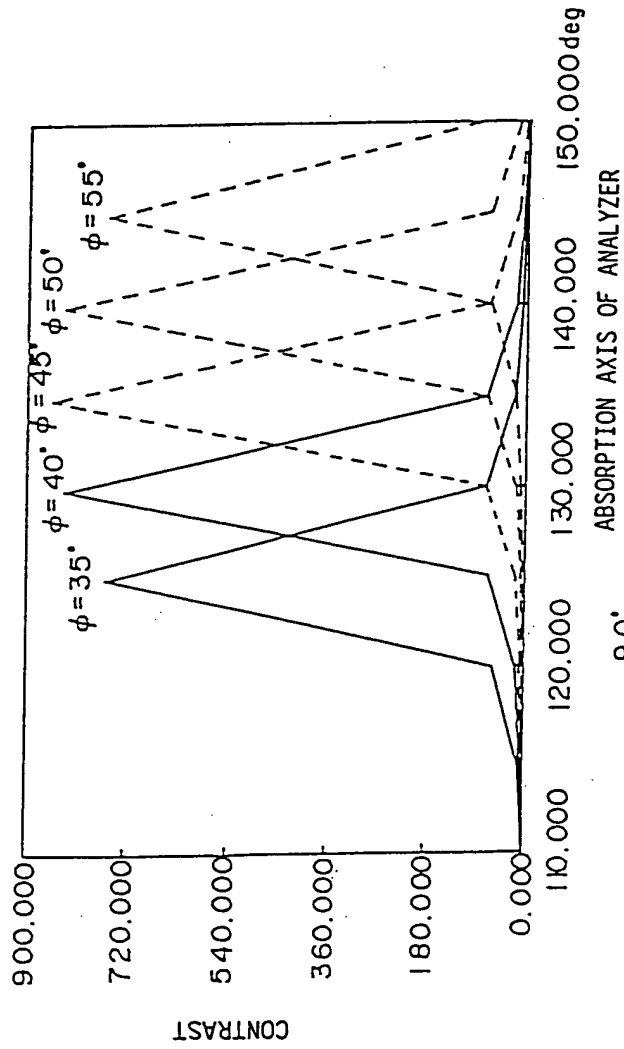


FIG. 2A

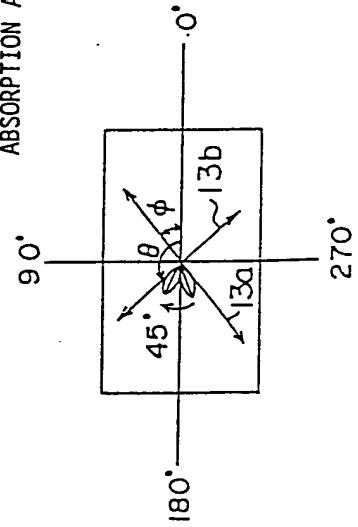


FIG. 2B

FIG. 3A

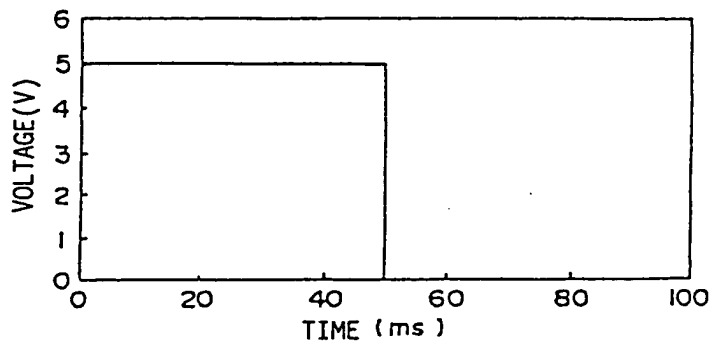


FIG. 3B

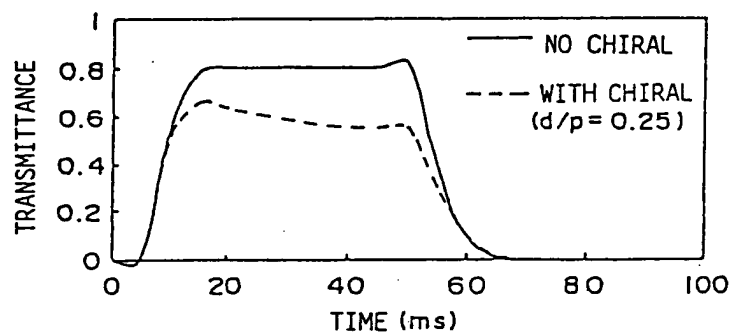


FIG. 3C

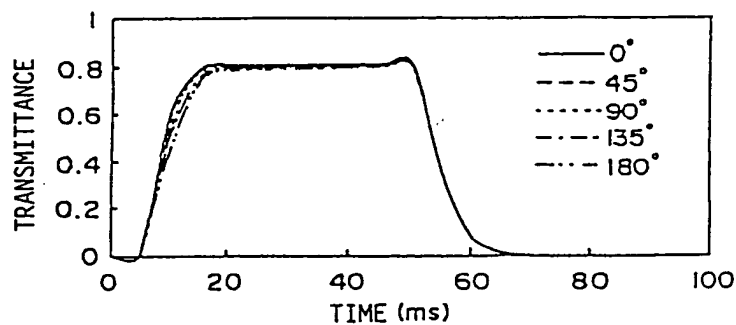
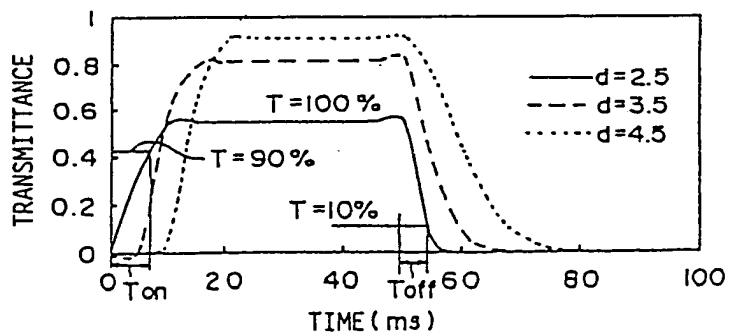


FIG. 3D



8F 96-04267

【図 4】

LIQUID CRYSTAL DISPLAY...
Giumuro et al.
Greer, Burns & Crain, Ltd.
Our Ref. No. 0941.68342
Sheet 4 of 95

Div. Of Serial No. 08/939,822
(James K. Folker)
(312) 360-0080

負の誘電率異方性を有する液晶を使った本発明のVAモード
液晶表示装置の動作を説明する図

FIG 4A
(A)

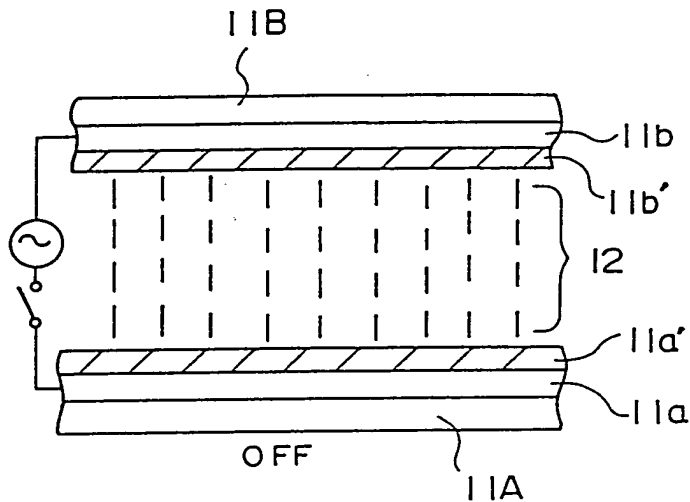
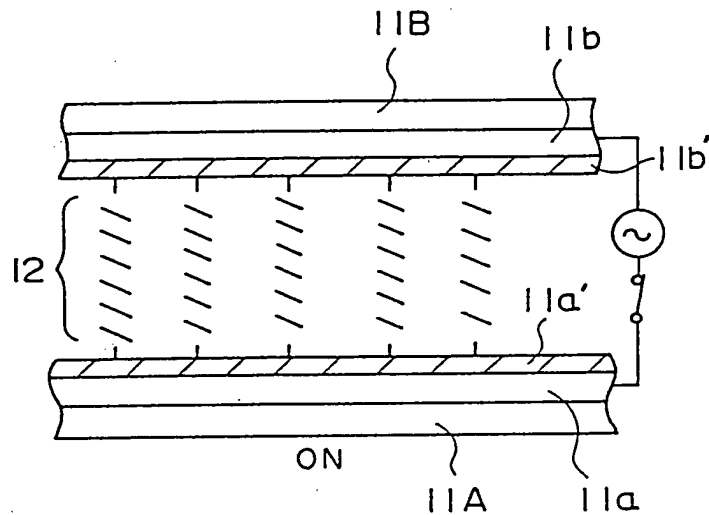


FIG 4B
(B)



SF96-04267

【図 5】

LIQUID CRYSTAL DISPLAY...
Ohmuro et al.
Greer, Burns & Crain, Ltd.
Our Ref. No. 0941.68342
Sheet 5 of 95

Div. Of Serial No. 08/939,822
(James K. Foiker)
(312) 360-0080

正の誘電率異方性を有する液晶を使った本発明のV Aモード
液晶表示装置の動作を説明する図

FIG 5A
(A)

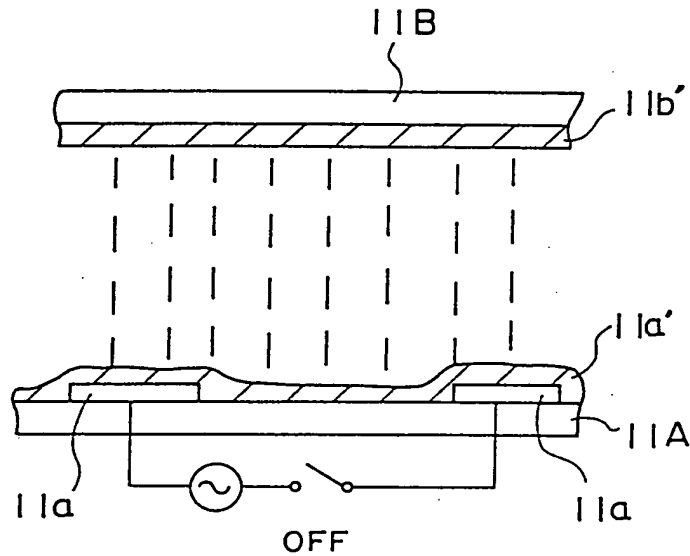
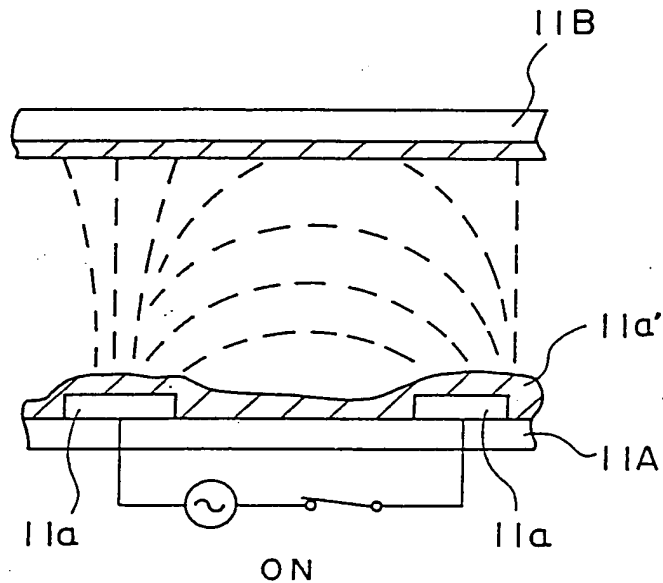


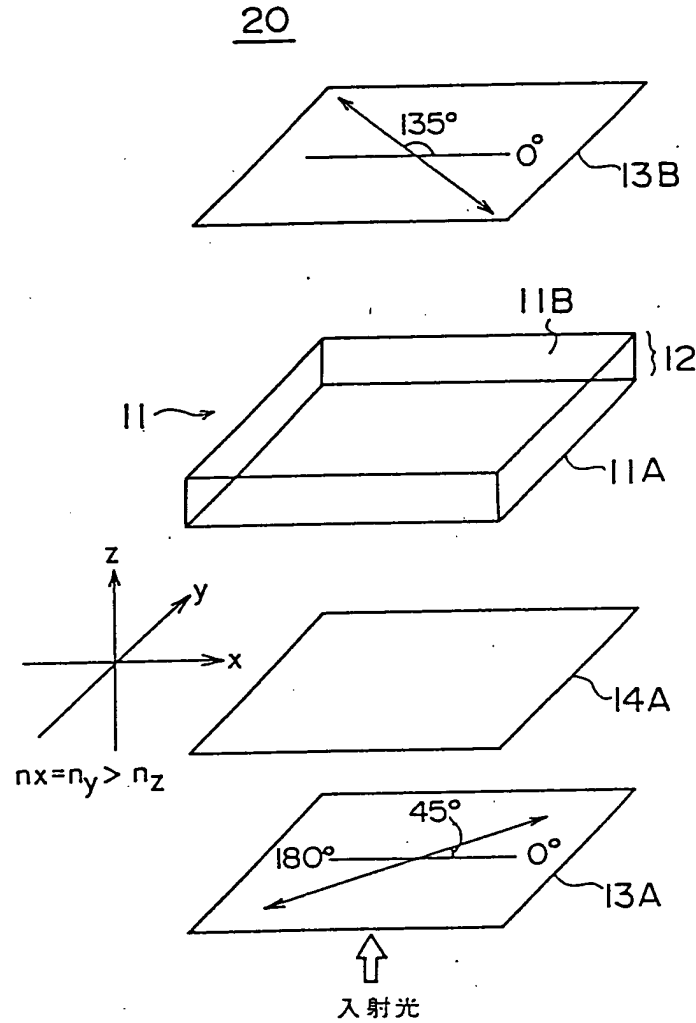
FIG 5B
(B)



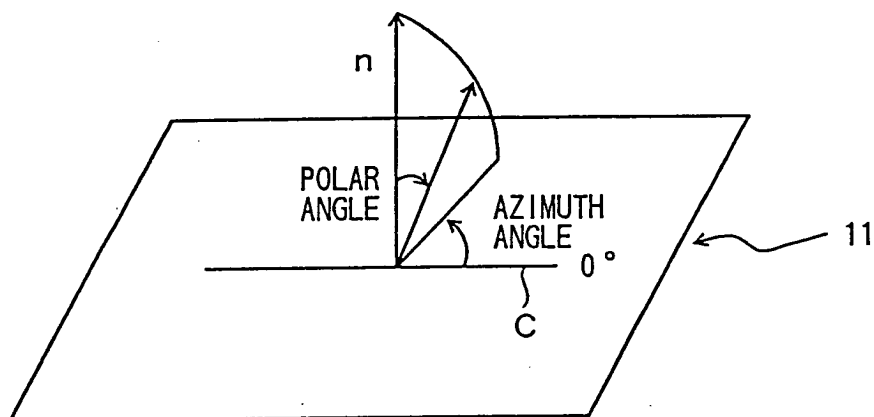
【図 6】

FIG 6A

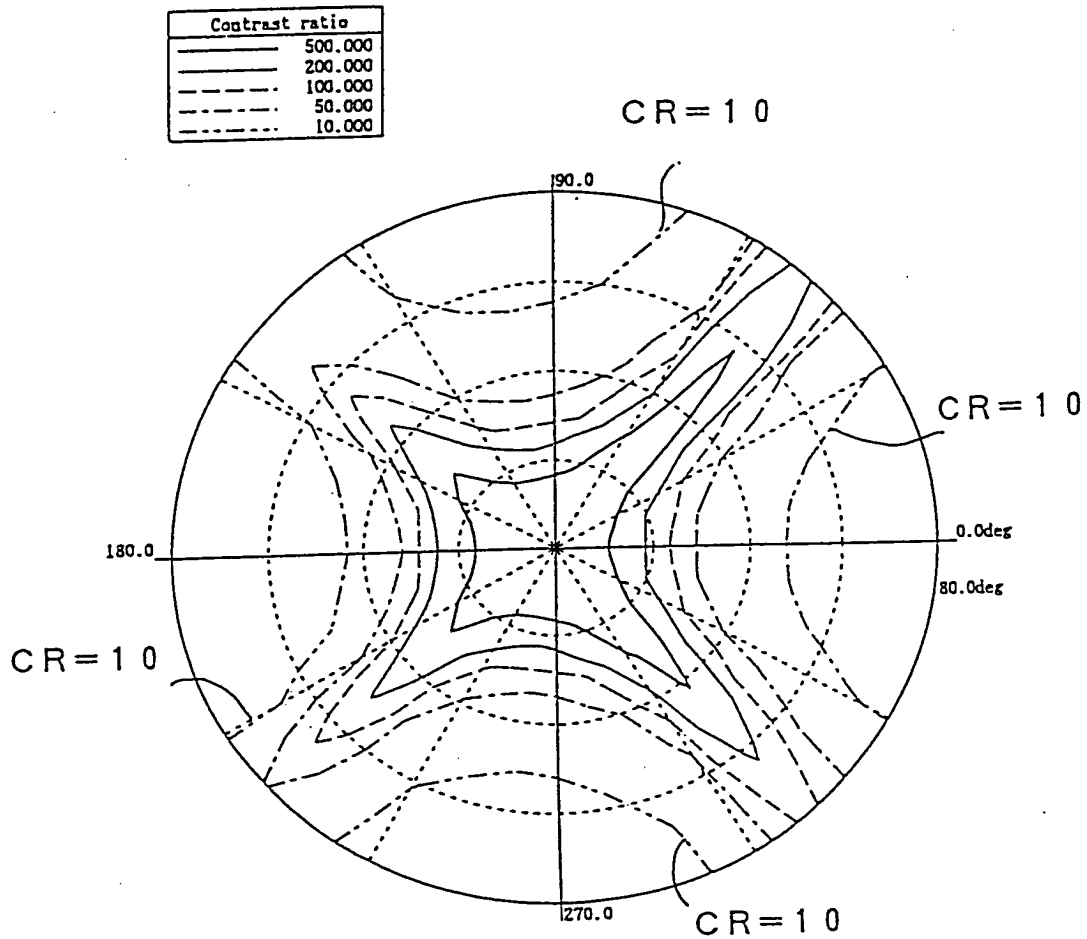
図 1 の液晶表示装置において、さらに位相差補償板を
設けた構成を示す図



6B
FIG. 4B

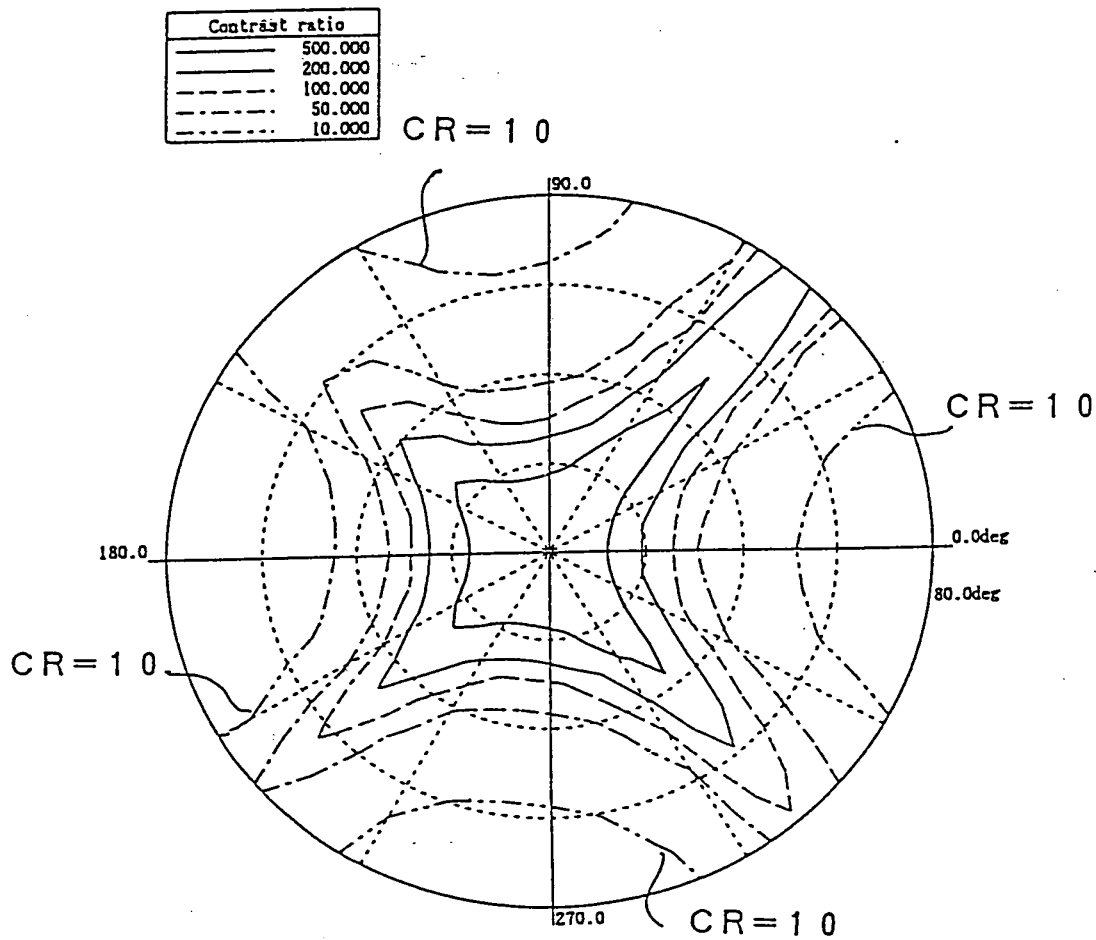


7
 FIG. 5



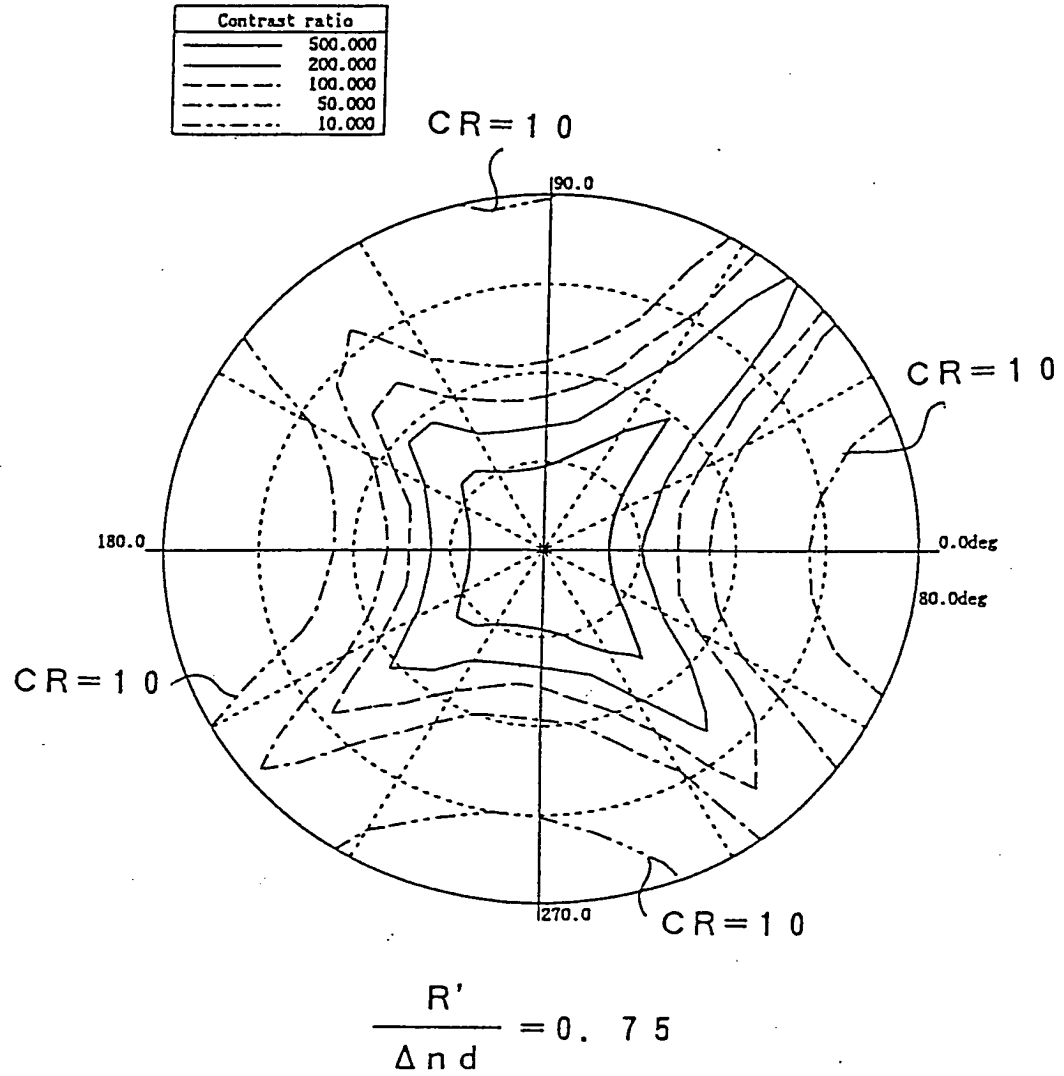
$$\frac{R'}{\Delta n d} = 0.45$$

8
 FIG. 8

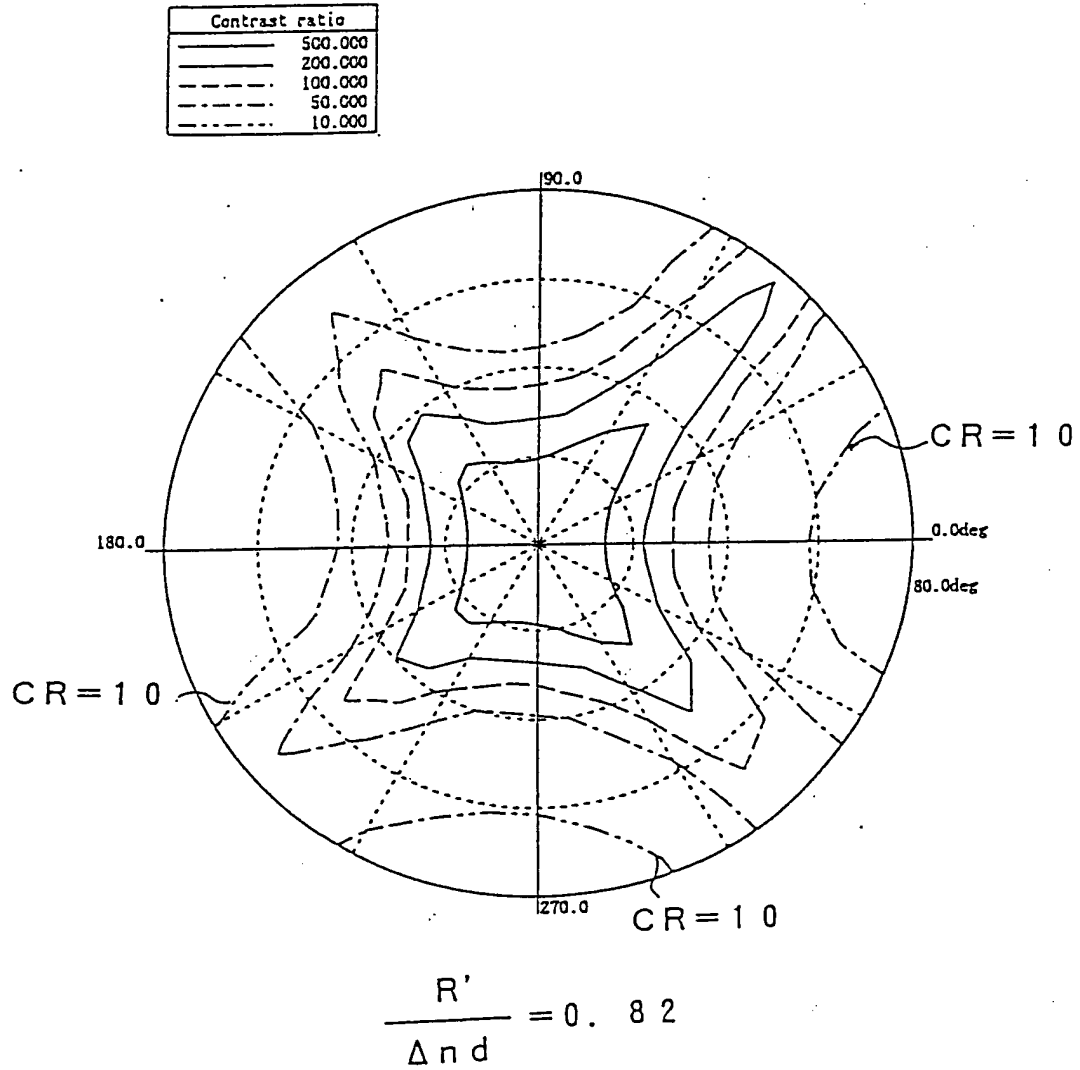


$$\frac{R'}{\Delta n d} = 0.6$$

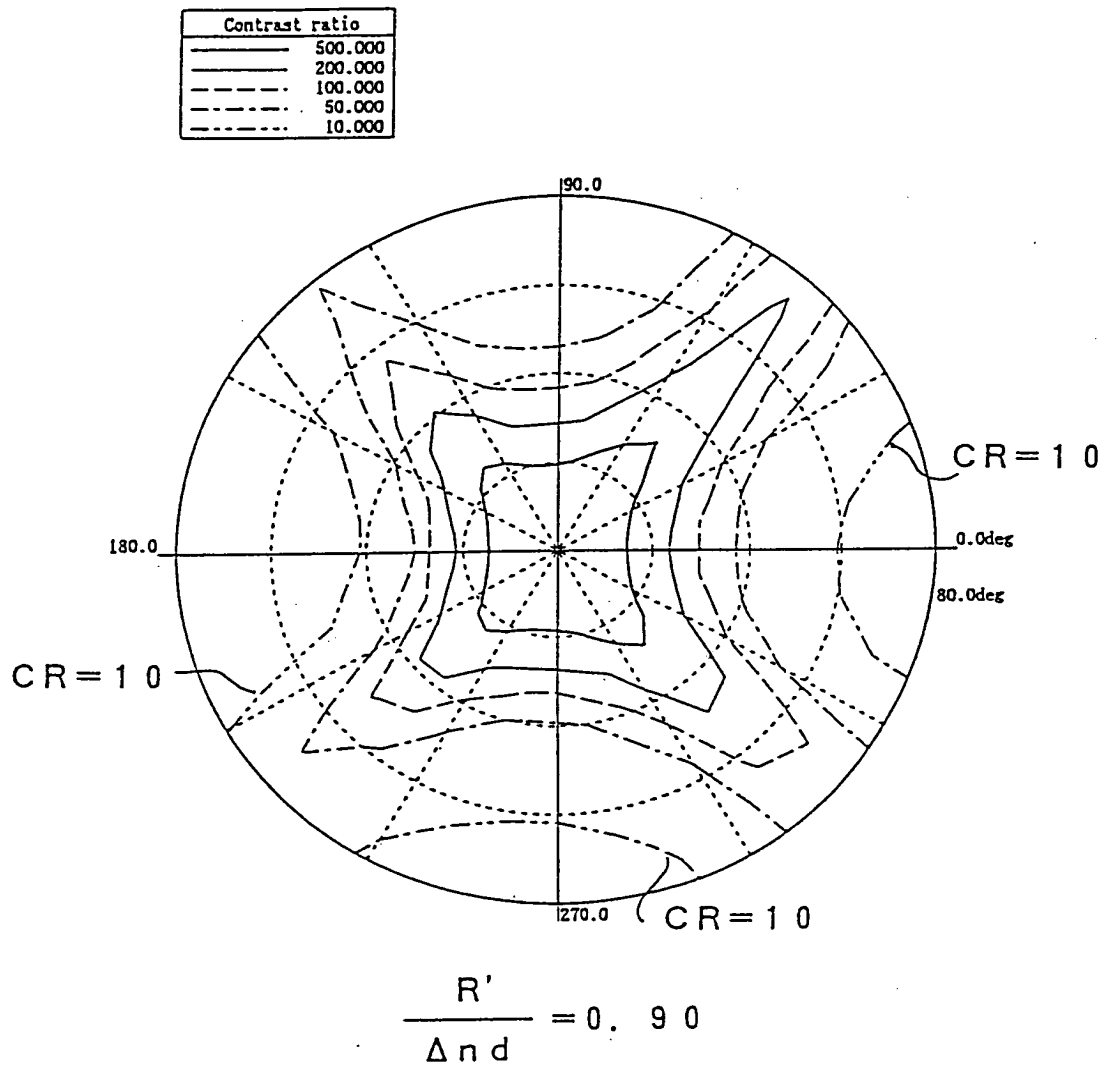
9
 FIG. 7



10
 FIG. 8

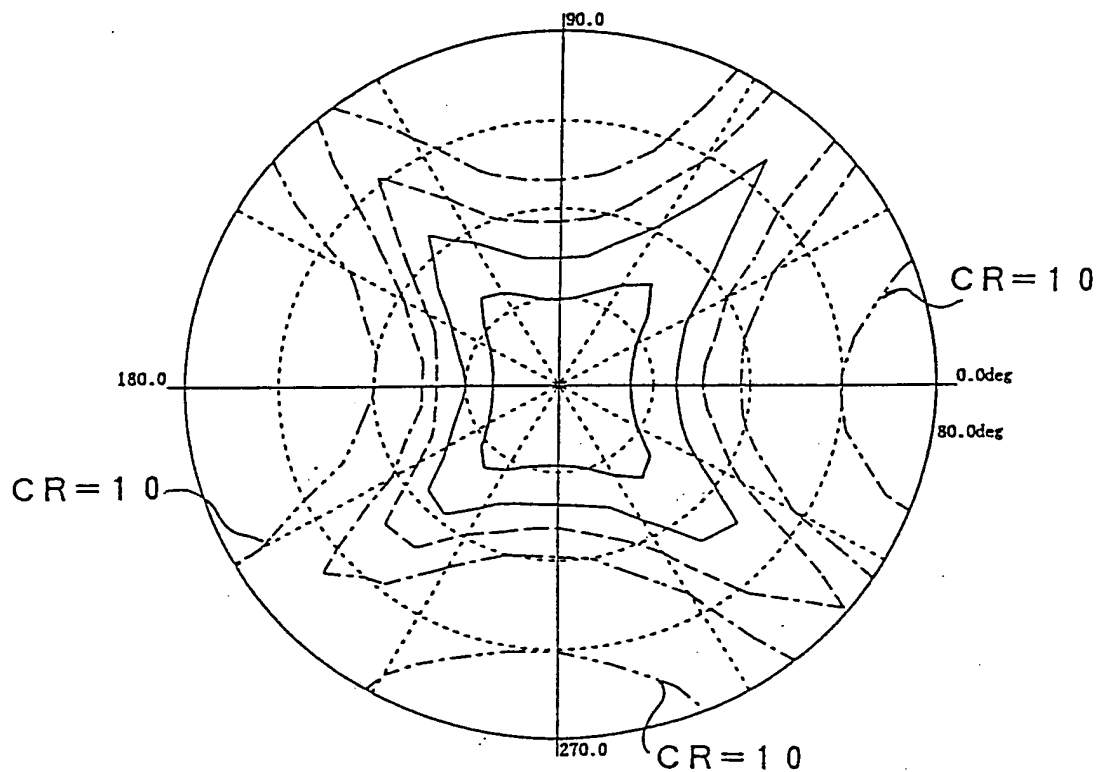


11
 FIG. 9



12
 FIG. 10

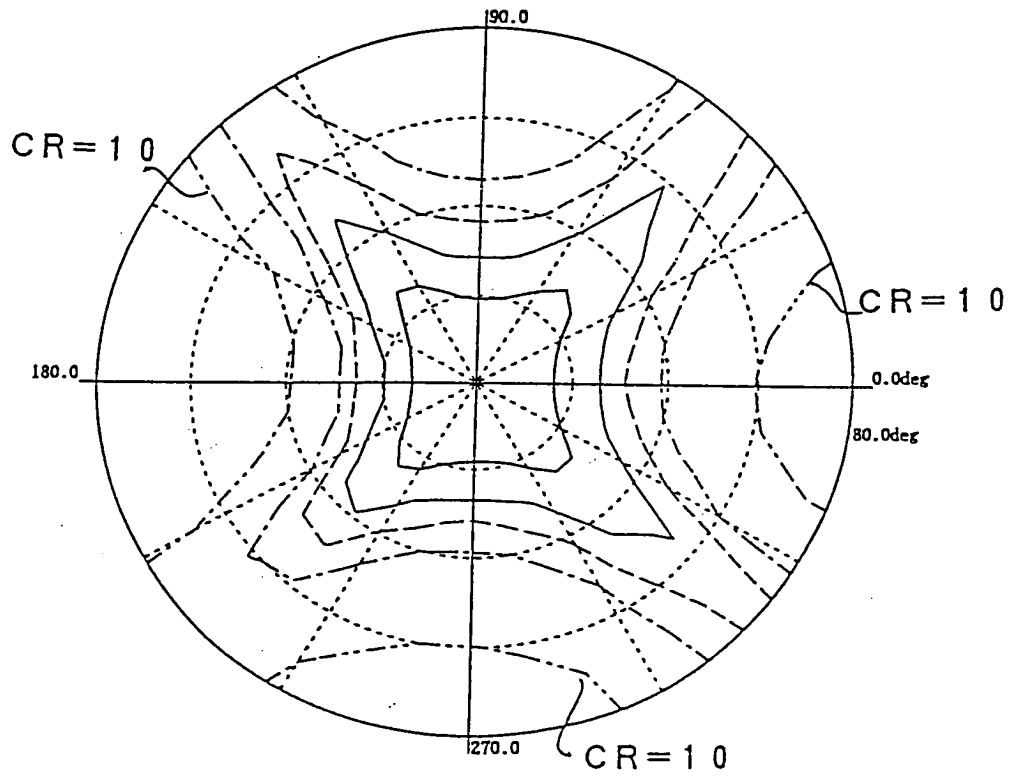
Contrast ratio	
—————	500.000
—————	200.000
-----	100.000
-----	50.000
-----	10.000



$$\frac{R'}{\Delta n d} = 0.97$$

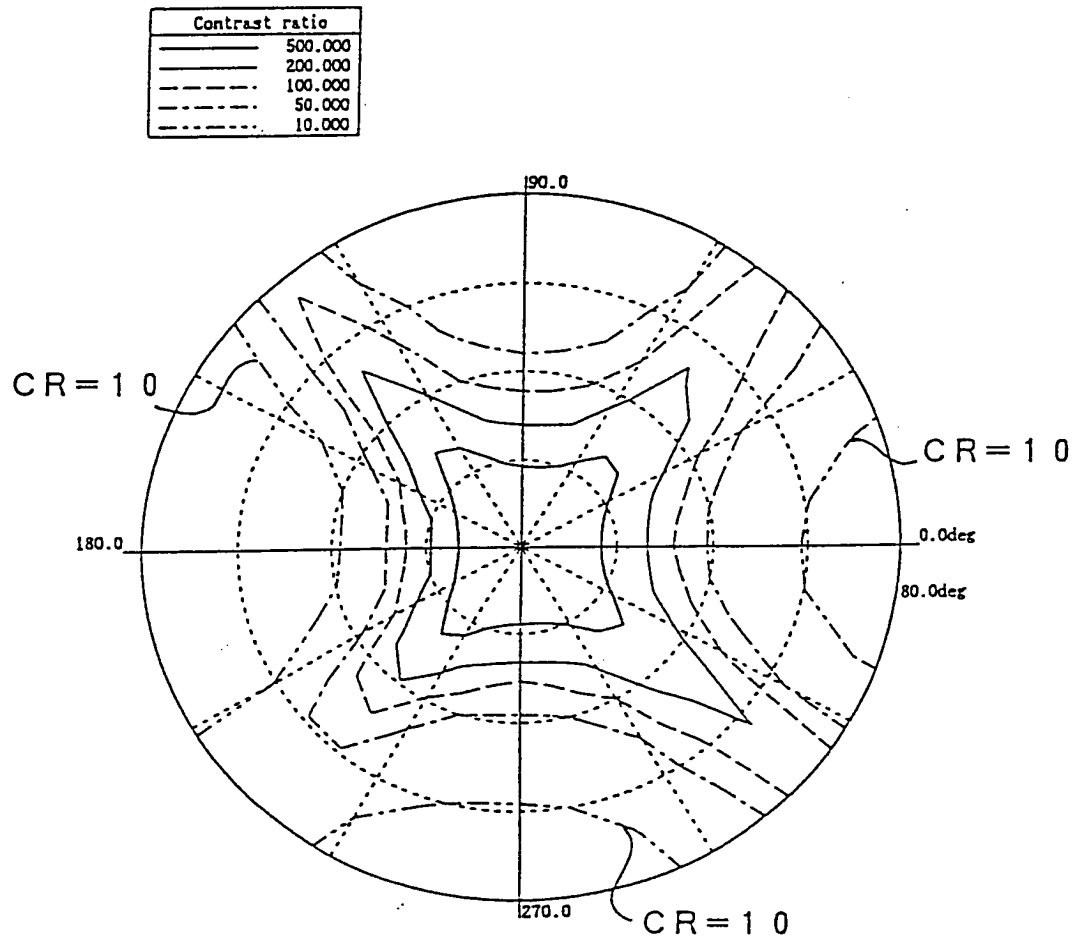
13
 FIG. 11

Contrast ratio	
—————	500.000
—————	200.000
-----	100.000
-----	50.000
-----	10.000



$$\frac{R'}{\Delta n d} = 1.05$$

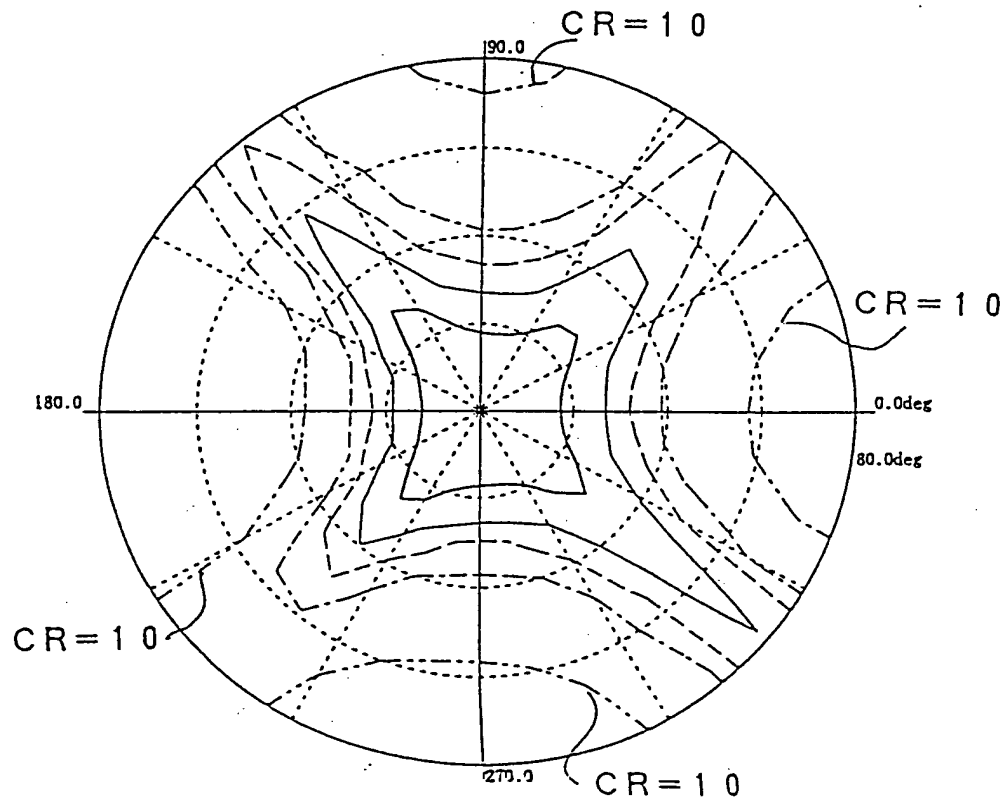
14
 FIG. 12



$$\frac{R'}{\Delta n d} = 1.12$$

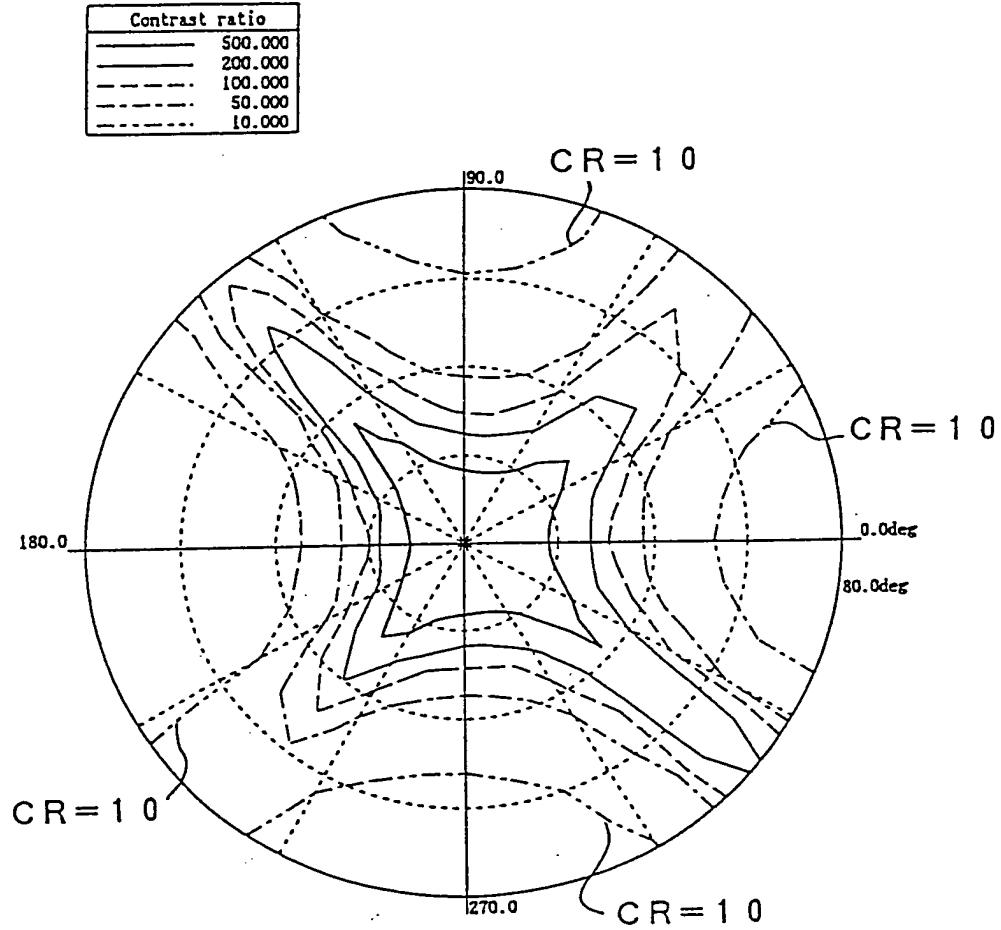
15
 FIG. 13

Contrast ratio	
—————	500.000
—————	200.000
—————	100.000
—————	50.000
—————	10.000



$$\frac{R'}{\Delta n d} = 1.20$$

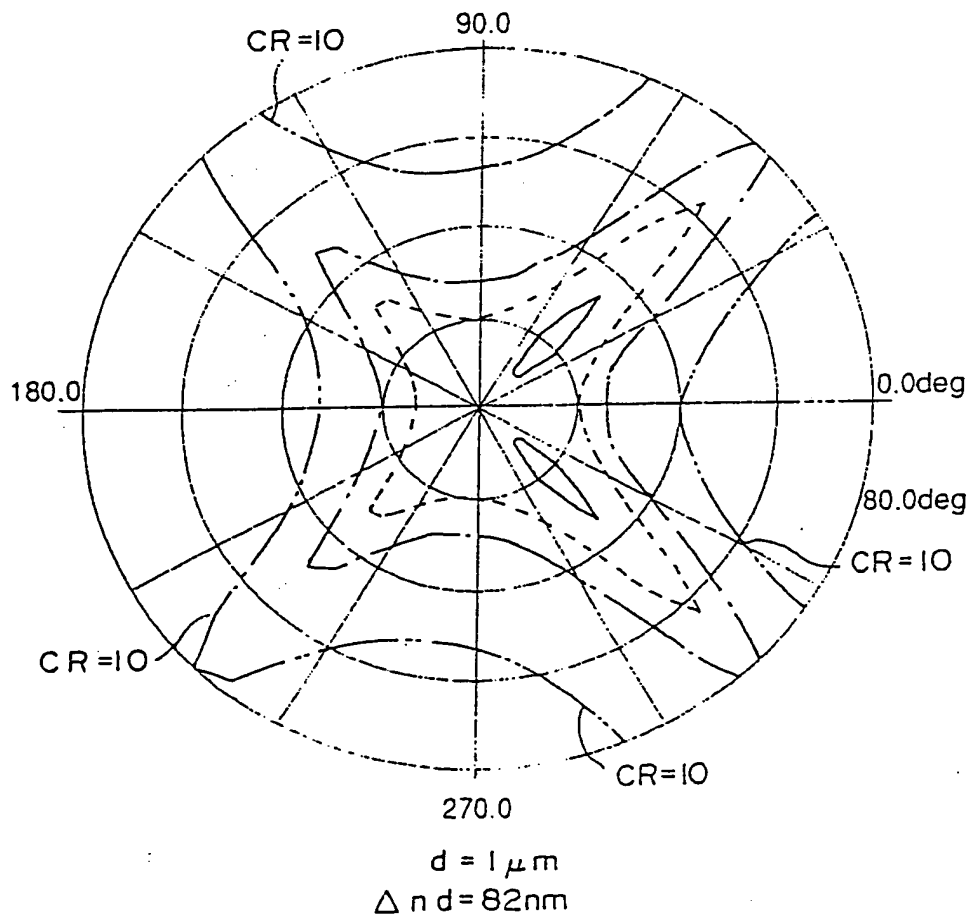
16
 FIG. 14




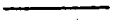



$$\frac{R'}{\Delta n d} = 1.34$$

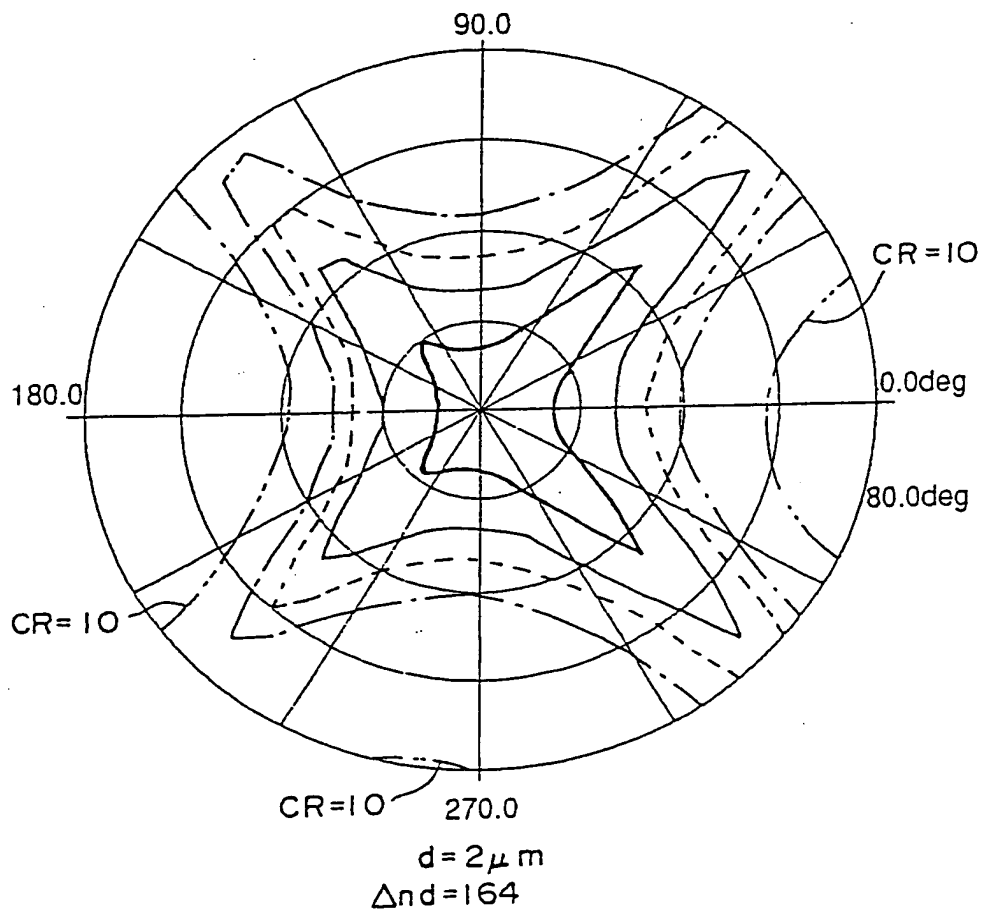
17
FIG. 15

Contrast ratio	
————	500.000
————	200.000
- - - -	100.000
- . . -	50.000
- . . -	10.000

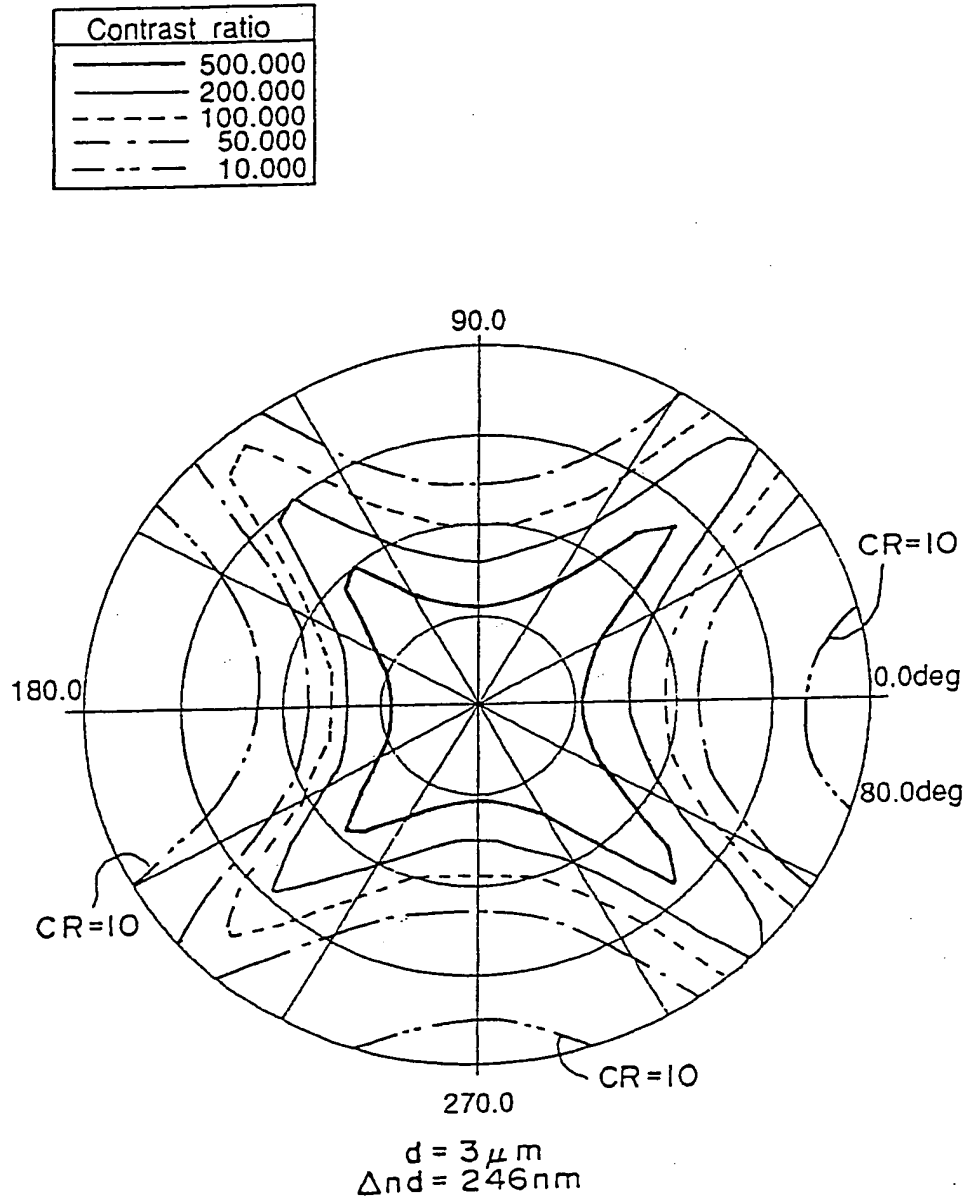


18
 FIG. 16

Contrast ratio	
	500.000
	200.000
	100.000
	50.000
	10.000

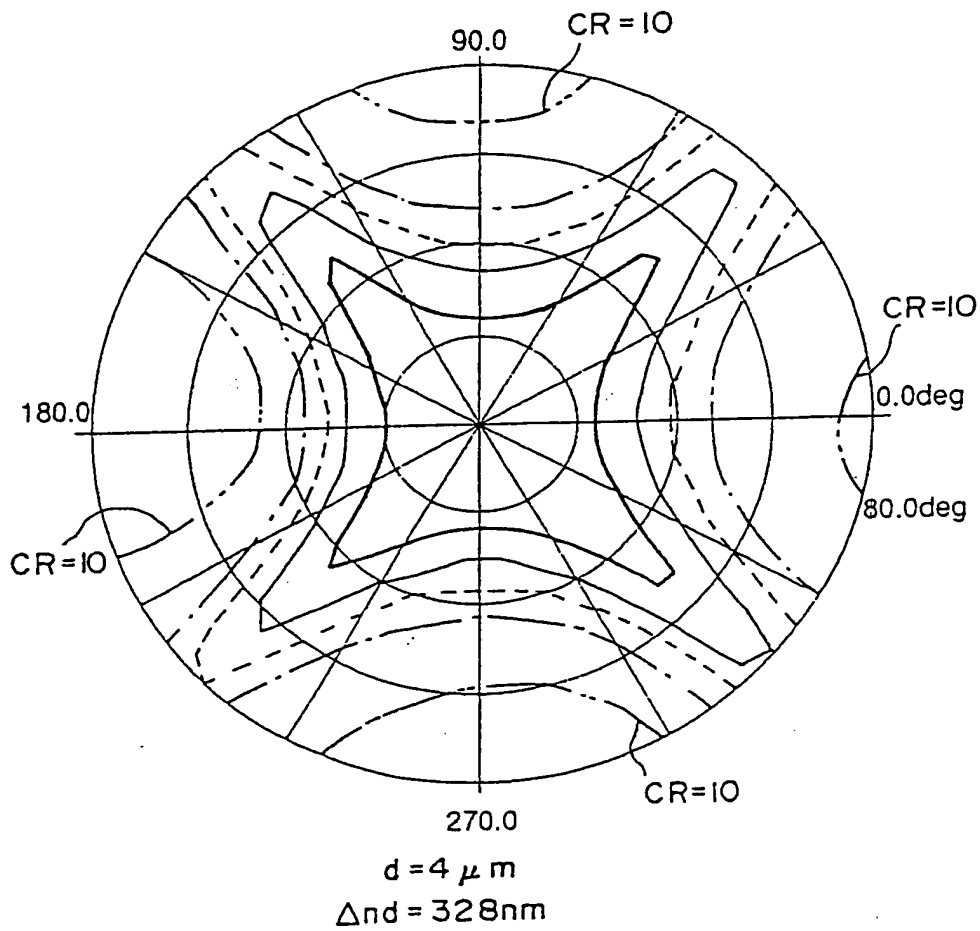


19
 FIG. 17



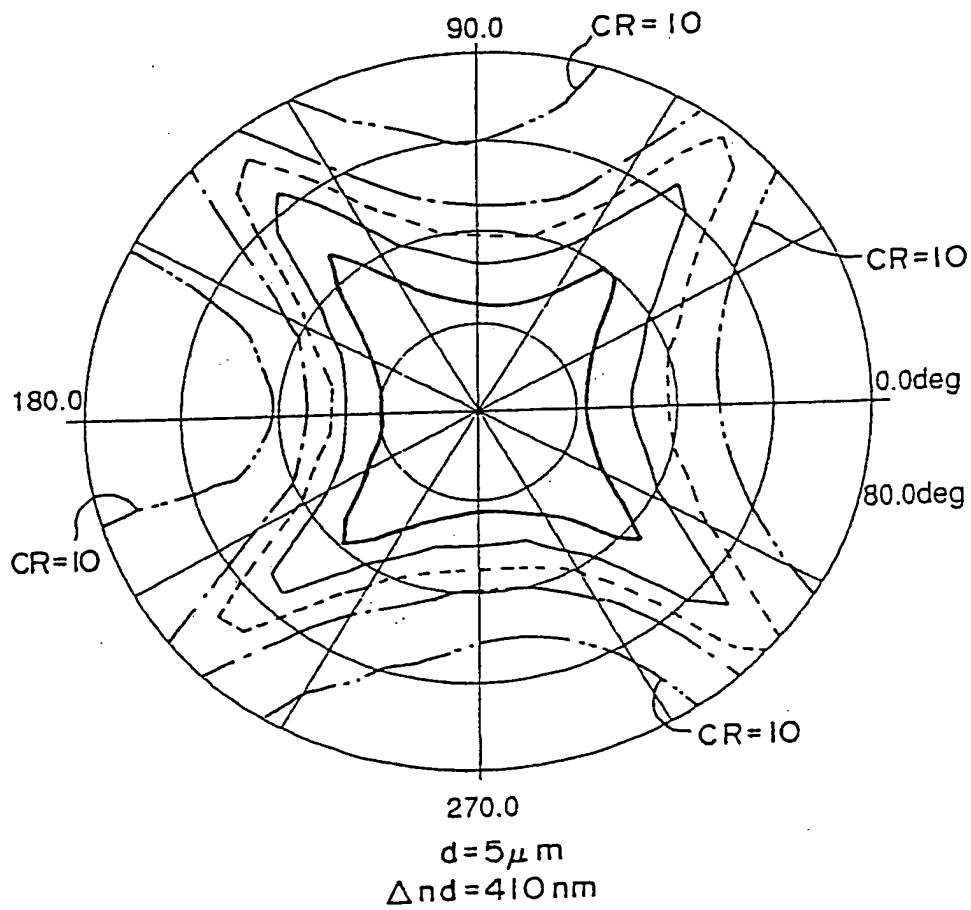
20
 FIG. 18

Contrast ratio	
————	500.000
————	200.000
-----	100.000
-----	50.000
-----	10.000



21
 FIG. 19

Contrast ratio	
————	500.000
————	200.000
-----	100.000
-----	50.000
-----	10.000



22
FIG. 20

Contrast ratio	
————	500.000
————	200.000
-----	100.000
-----	50.000
-----	10.000

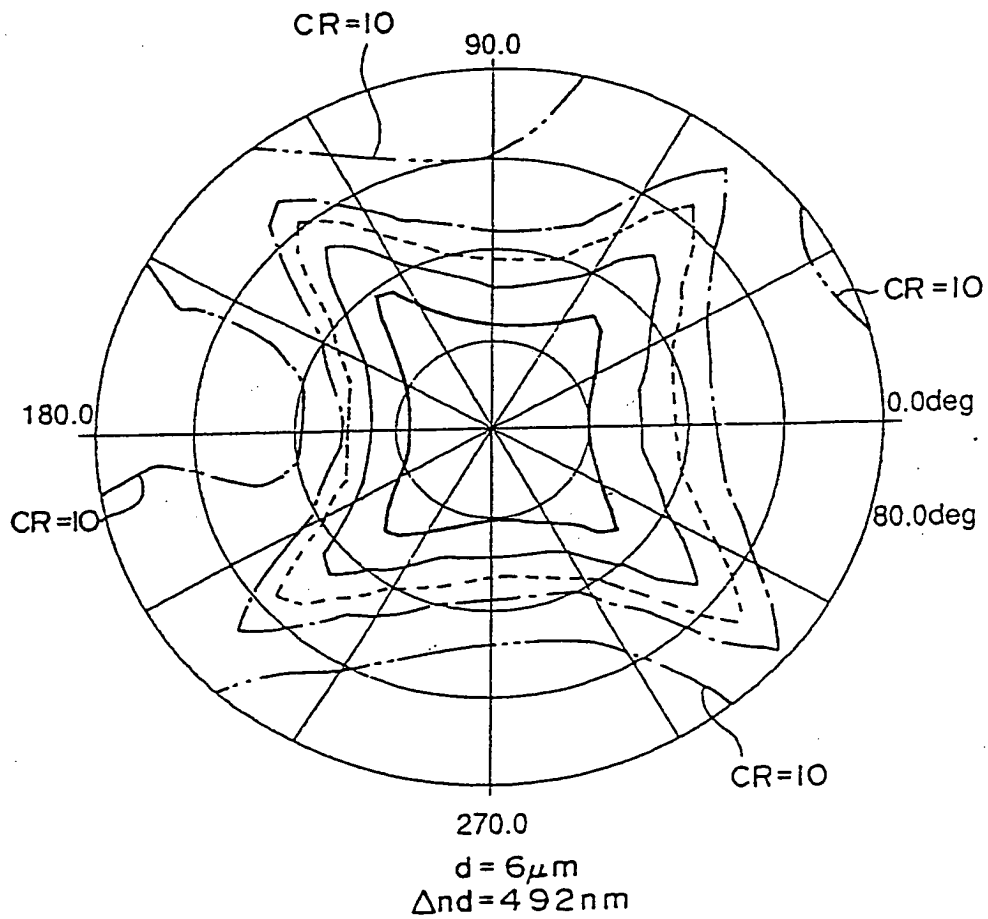
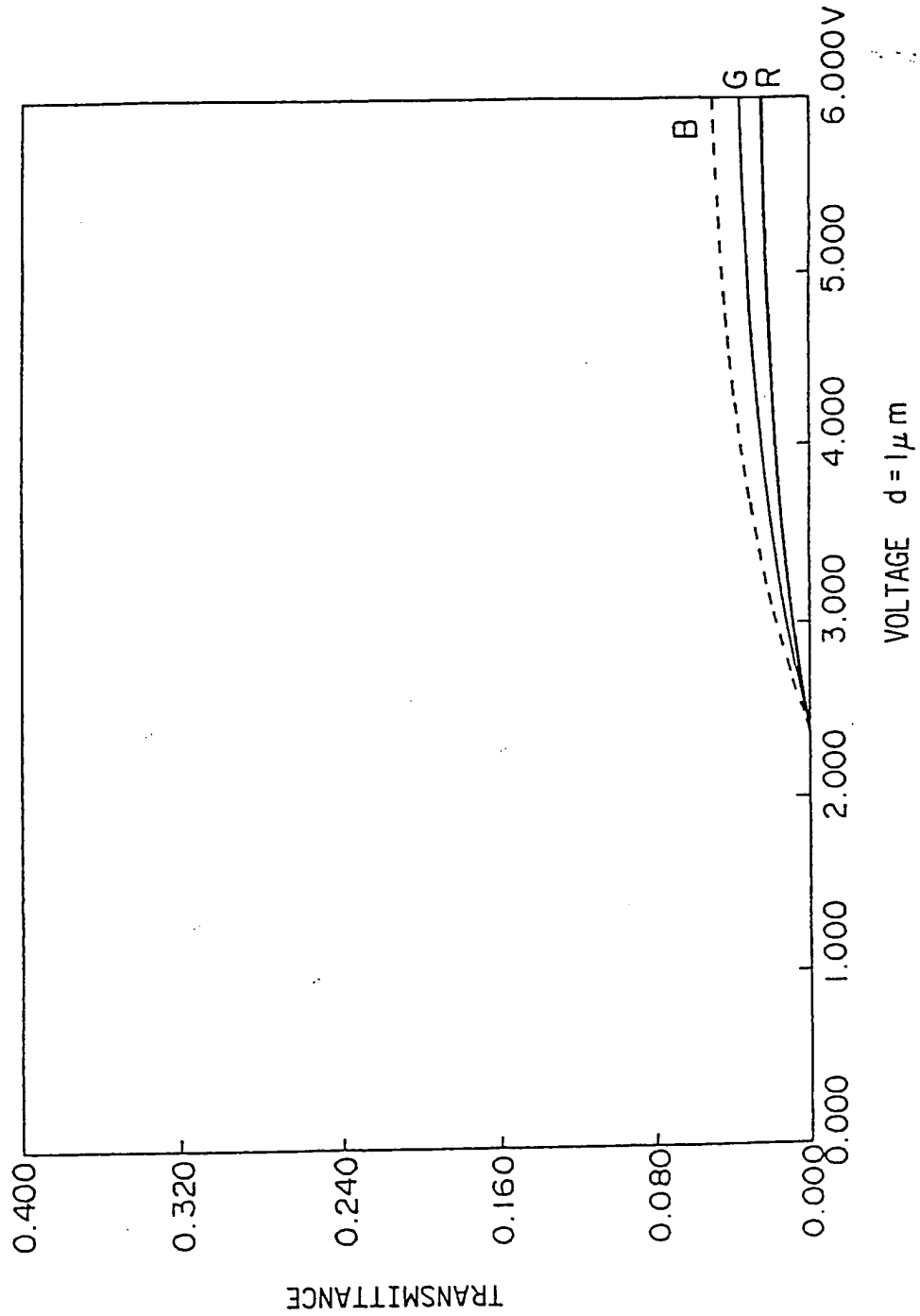
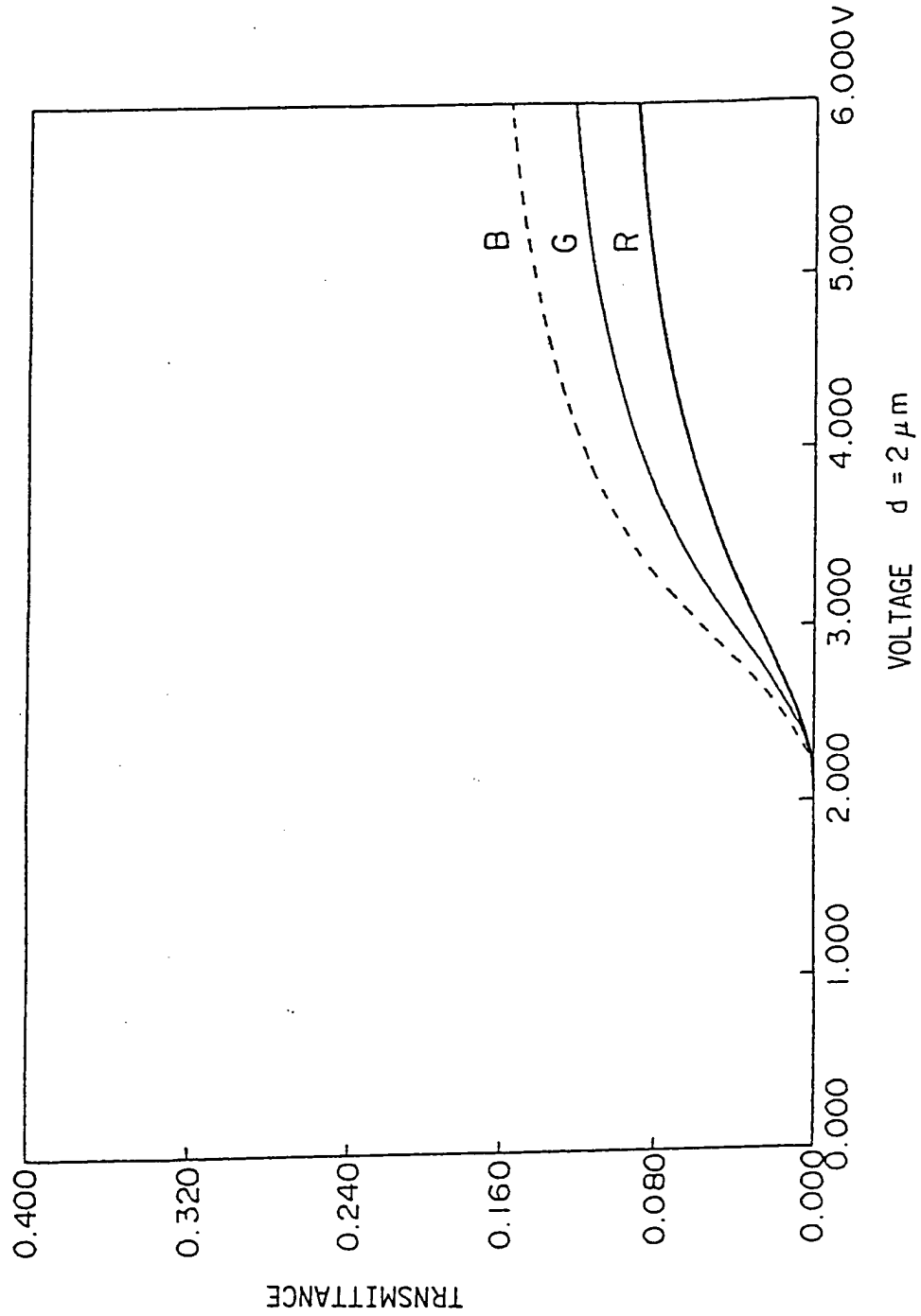


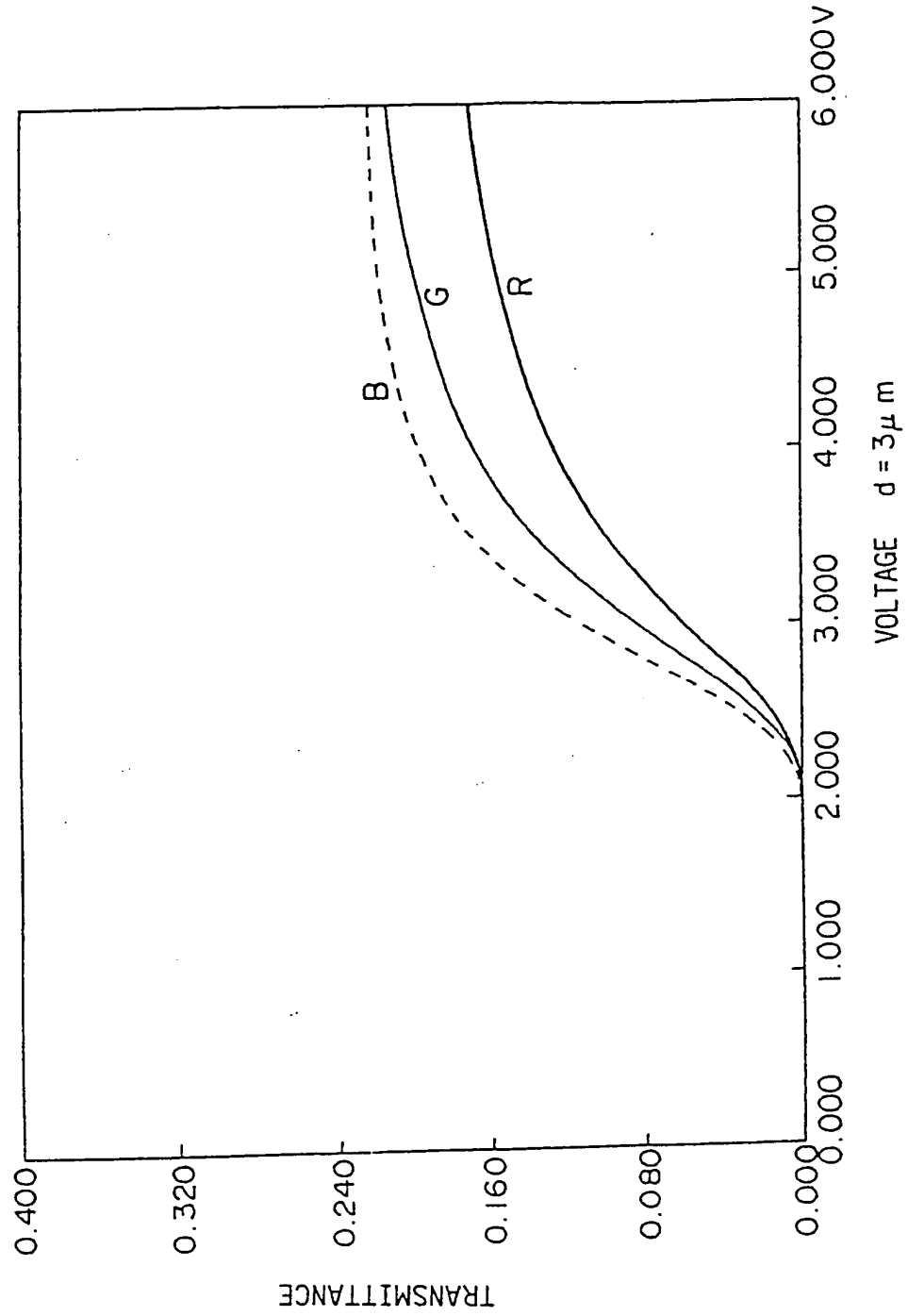
FIG. 21²³



24
FIG. 22

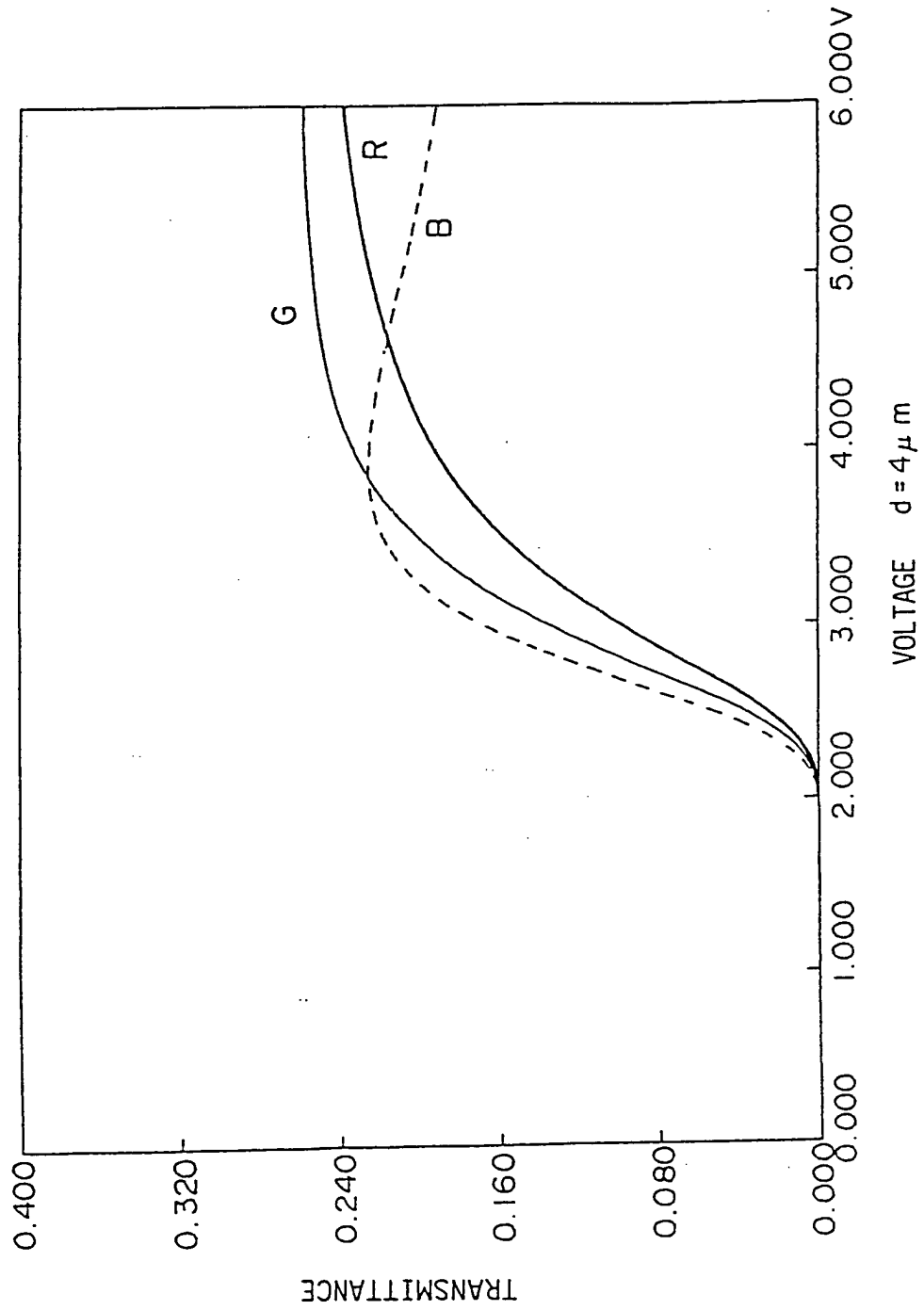


25
FIG. 23

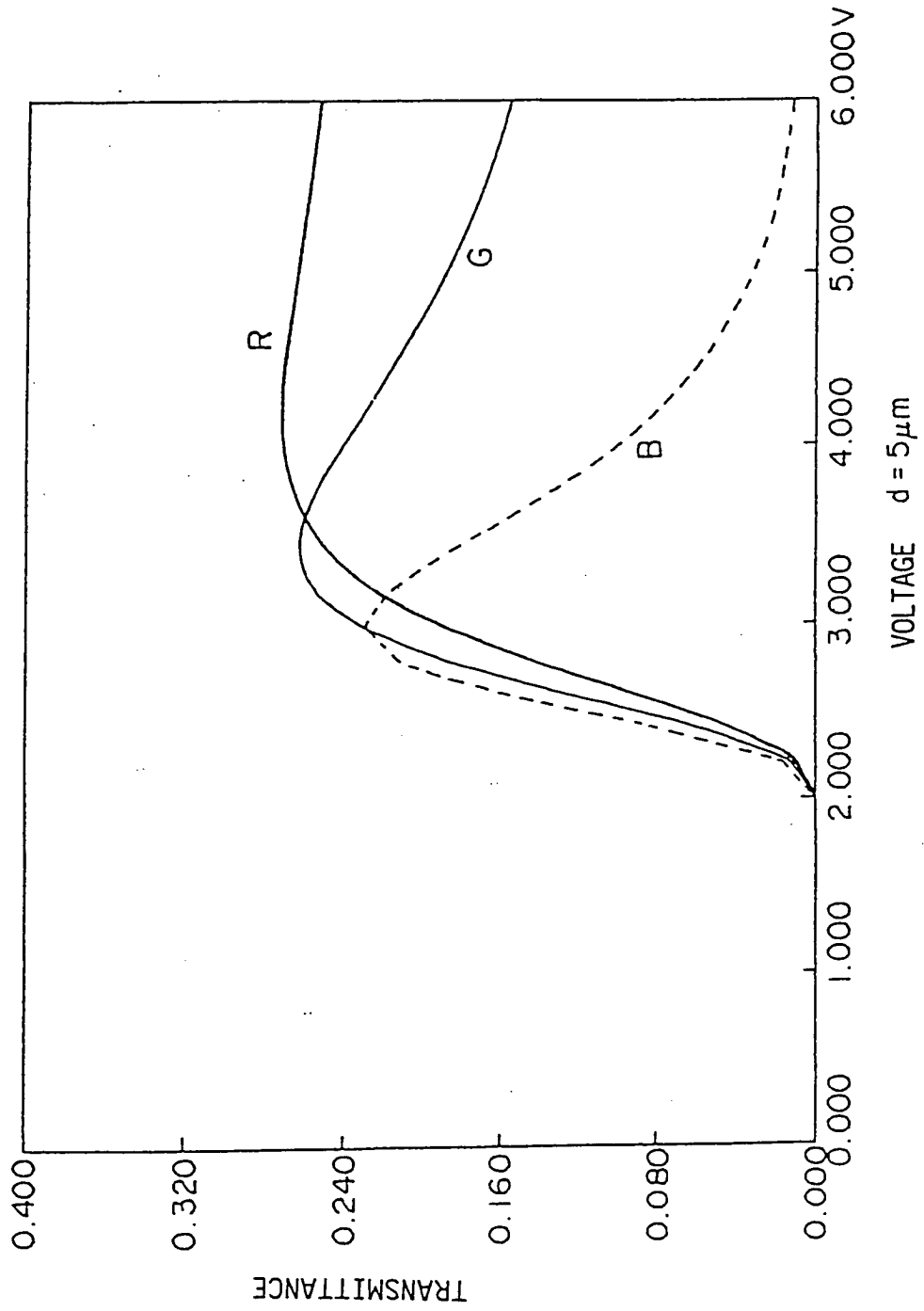


26

FIG. 24

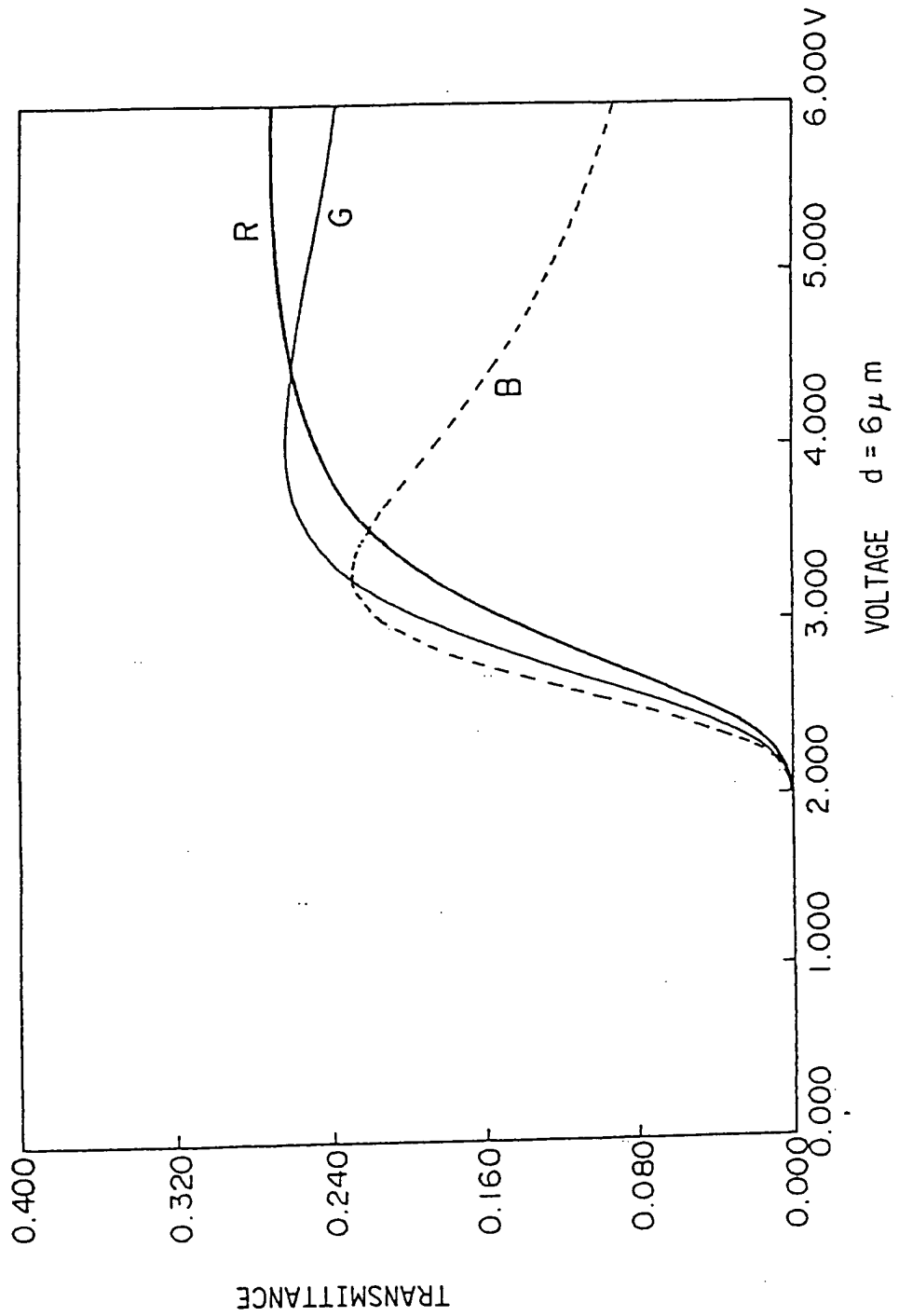


27
FIG. 25

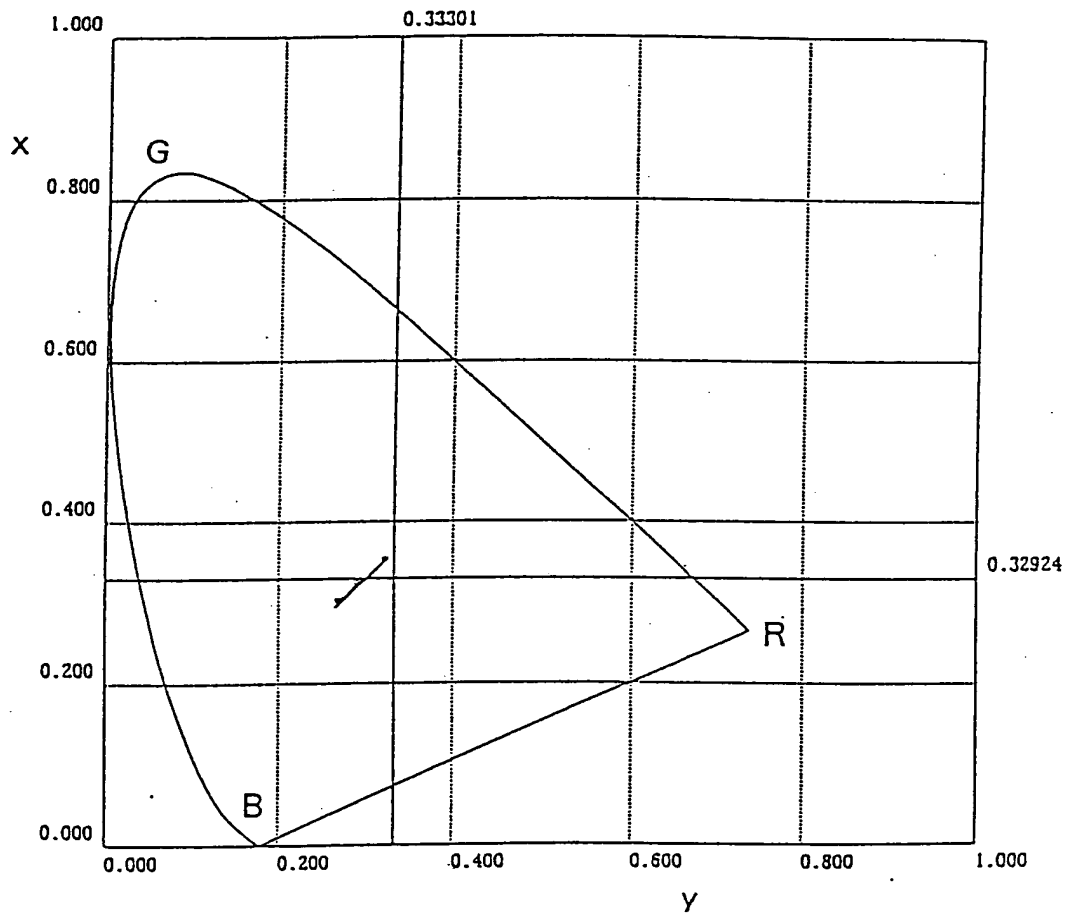


28

FIG. 26

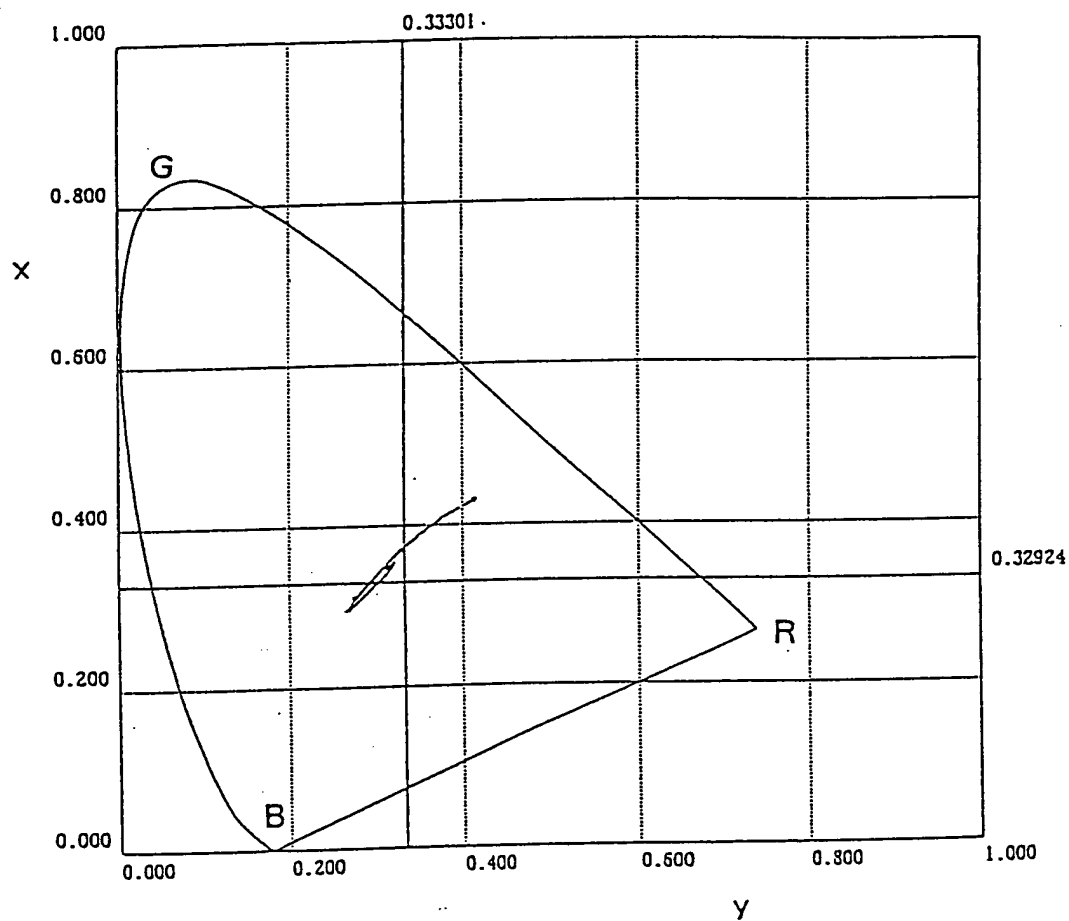


29
FIG. 27



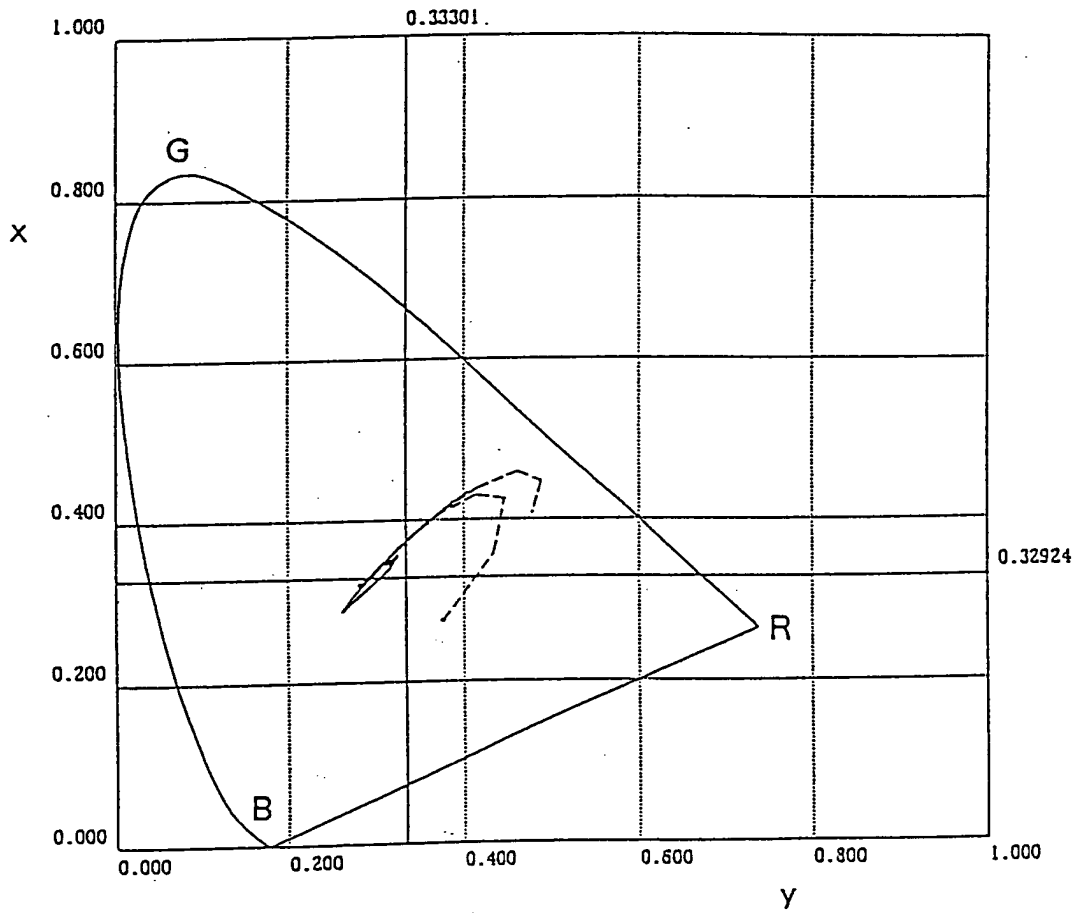
$$d = 1 \mu m$$

30
 FIG. 28



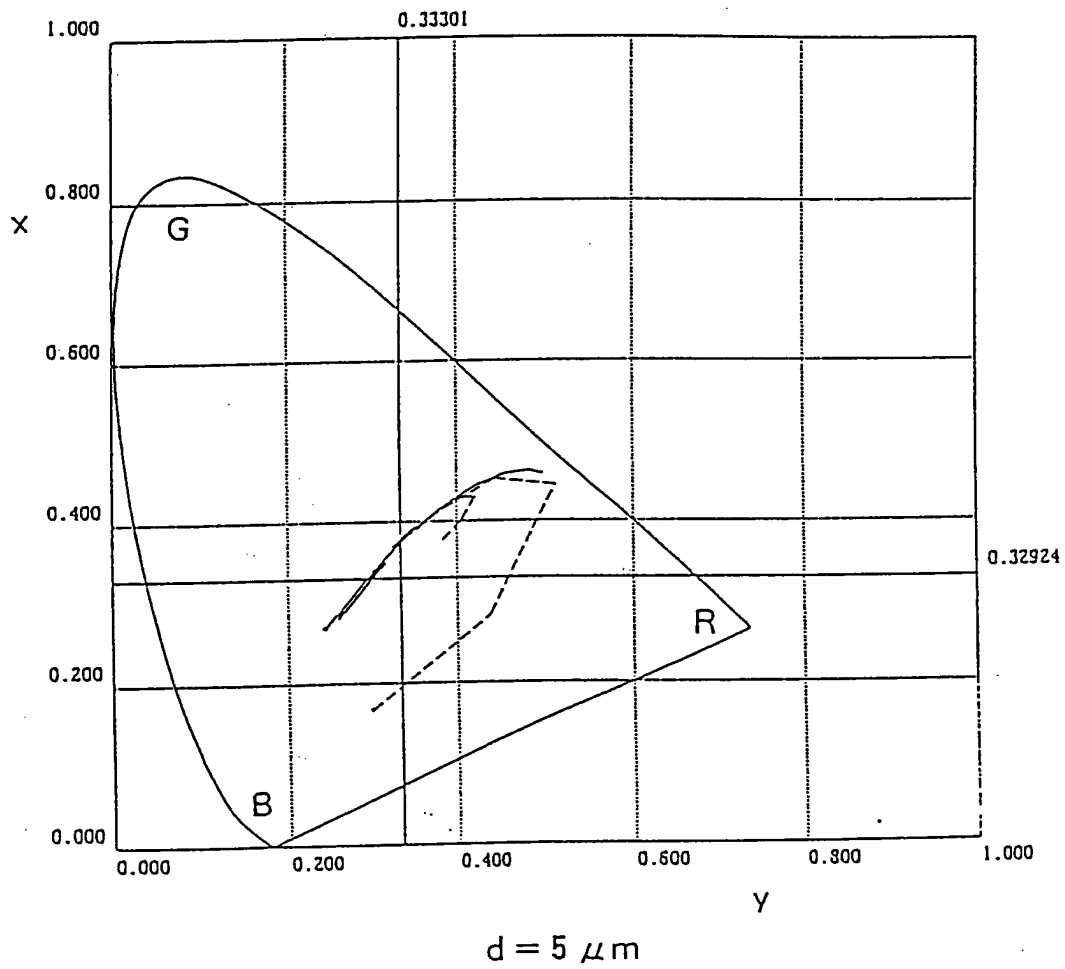
$d = 3 \mu m$

3/
FIG. 29

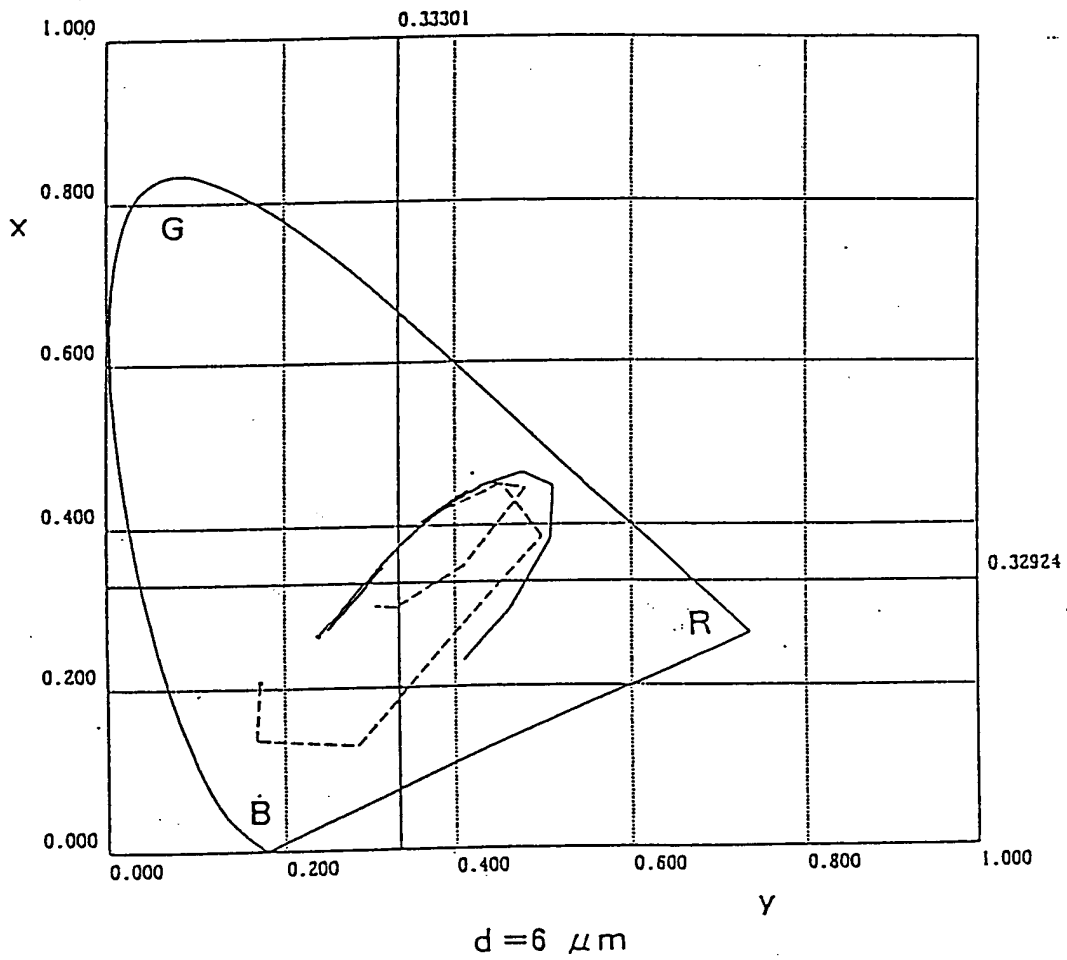


$$d = 4 \mu m$$

32
FIG. 30

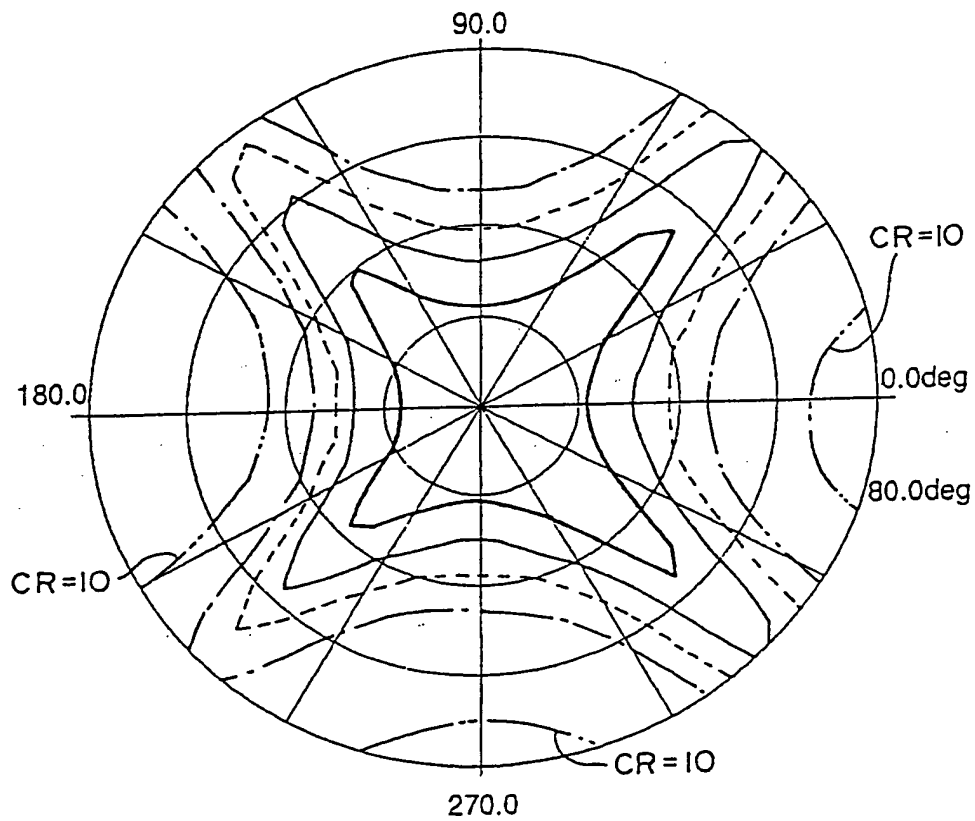


33
FIG. 31



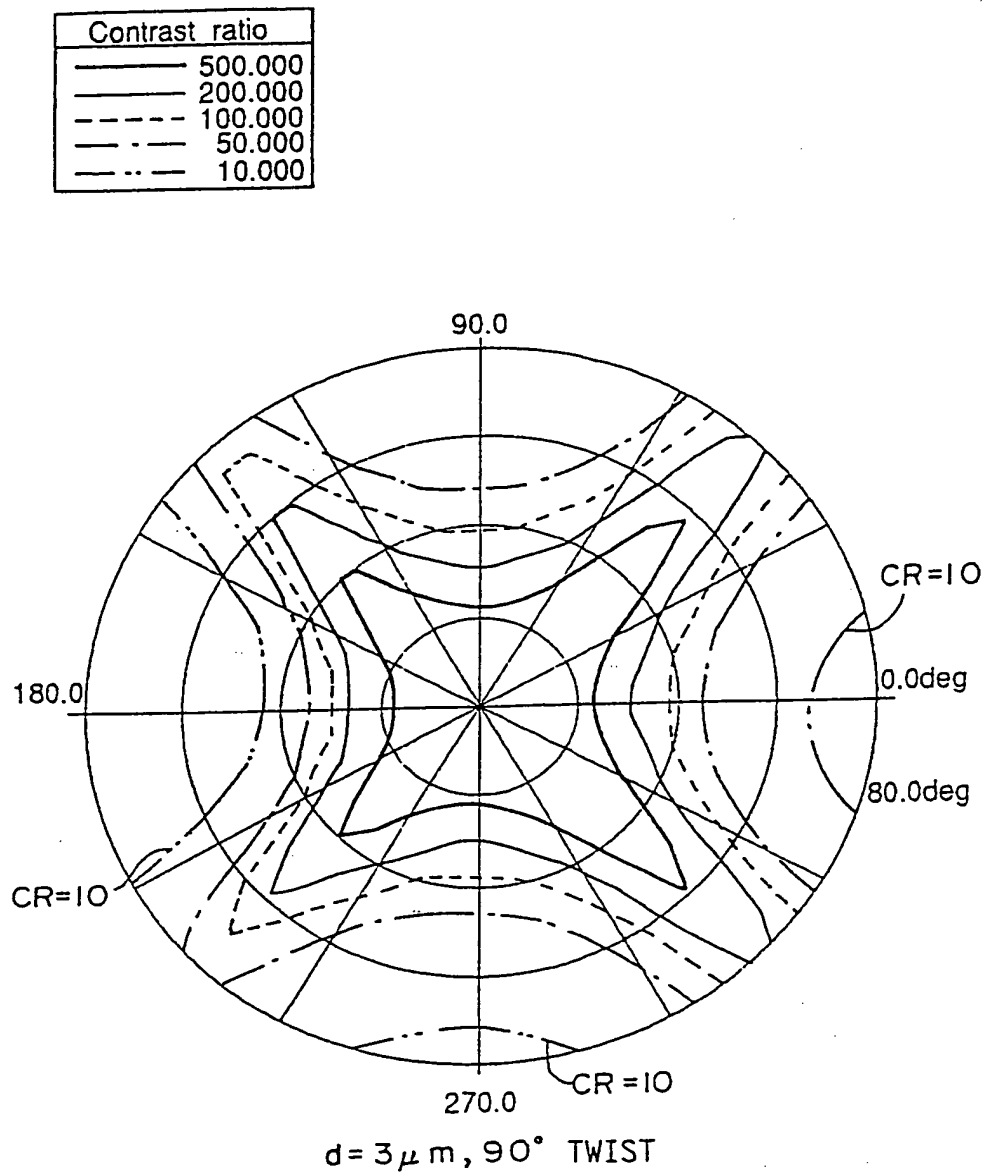
34
FIG. 32

Contrast ratio	
————	500.000
————	200.000
-----	100.000
- . - . -	50.000
- - - - -	10.000



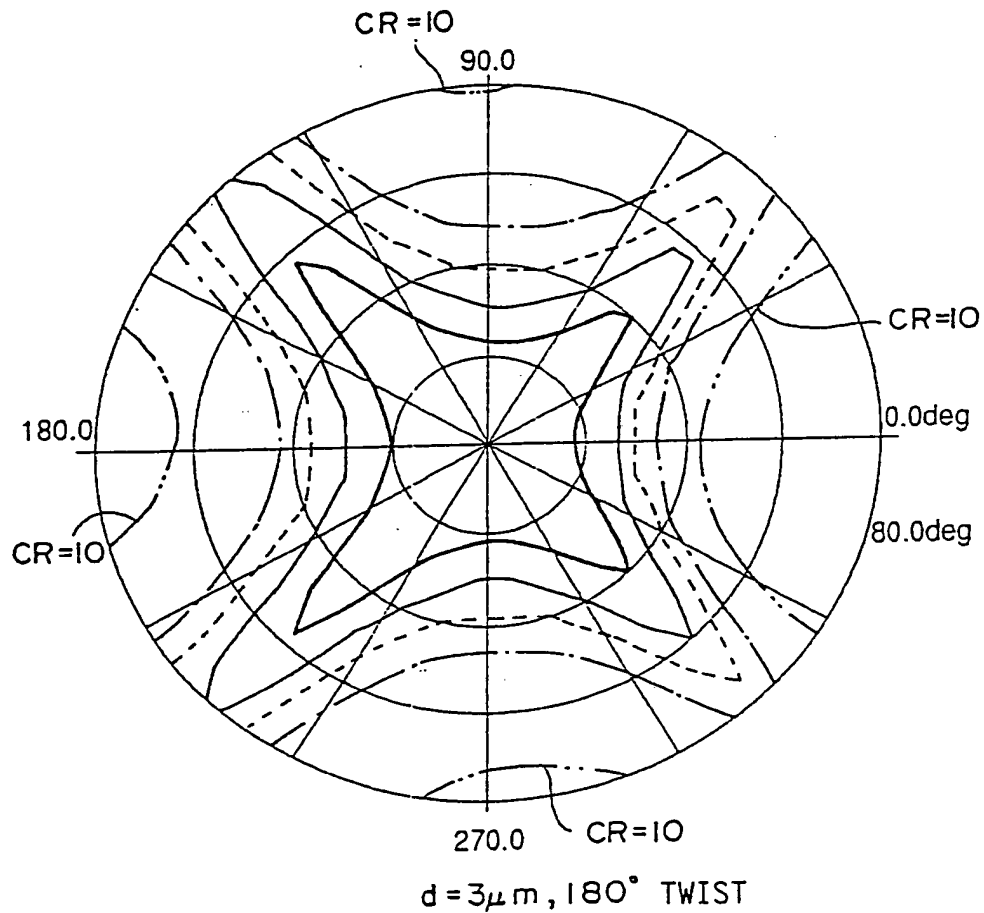
$d = 3\mu\text{m}$, 0° TWIST

35
FIG. 33



36
FIG. 34

Contrast ratio	
————	500.000
————	200.000
-----	100.000
- - - - -	50.000
· · · · ·	10.000

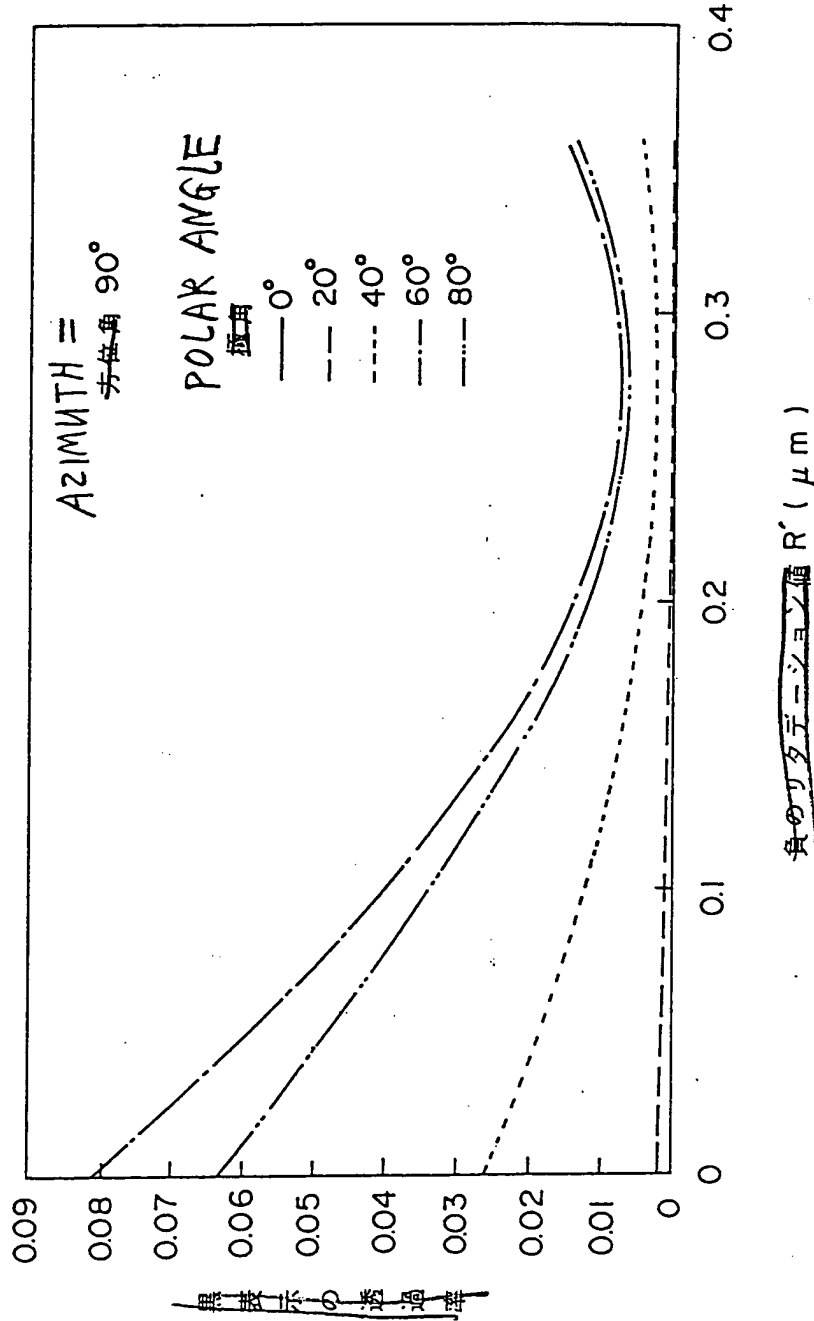


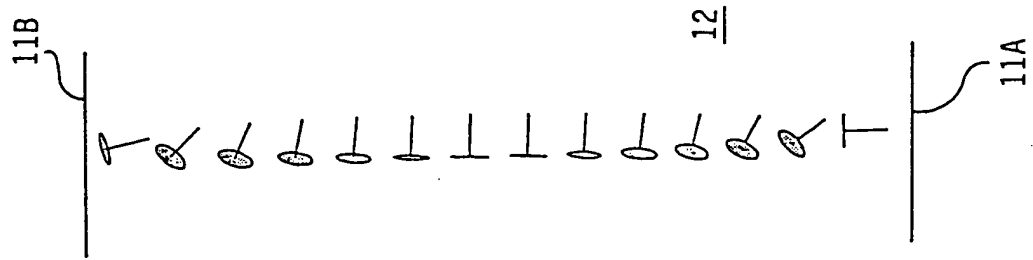
【図37】

図6の液晶表示装置の黒表示時における透過率を示す図

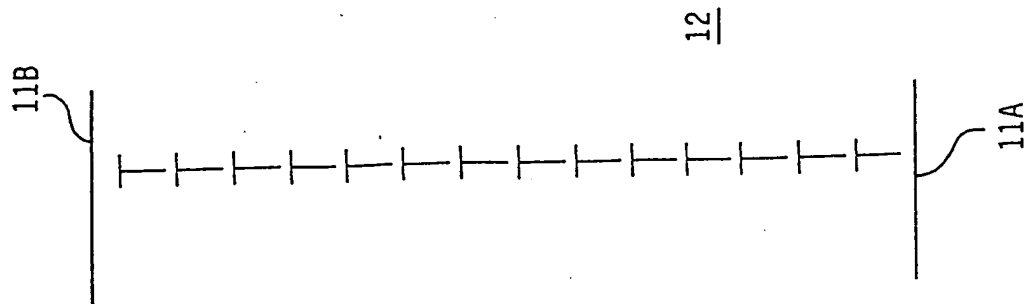
FIG 37

BLACK-MODE TRANSMITTANCE

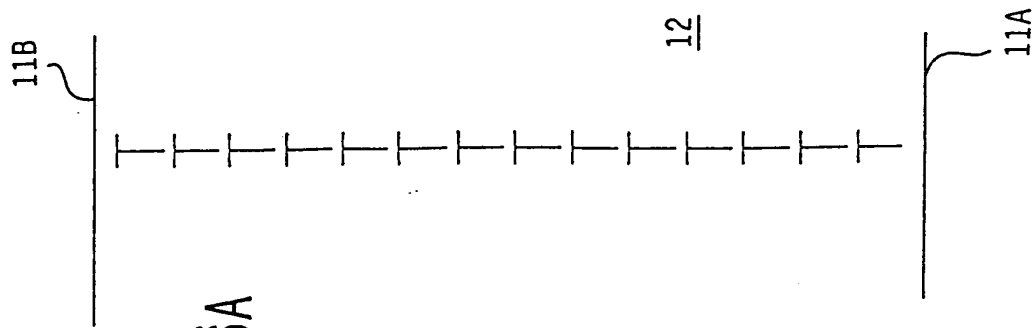
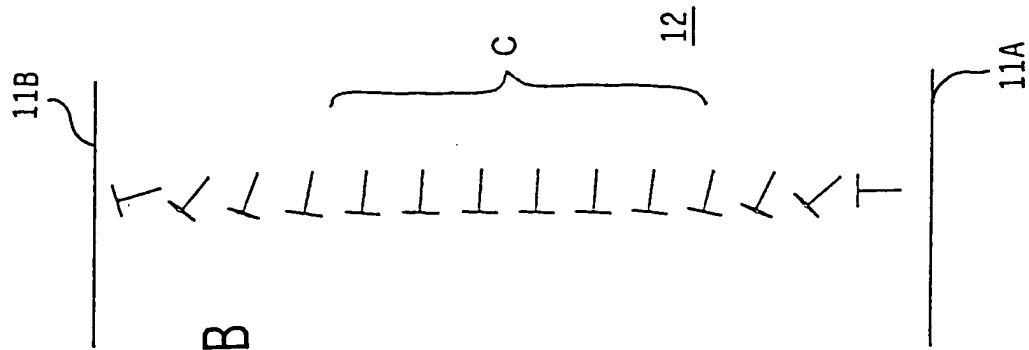




38
FIG. 38B

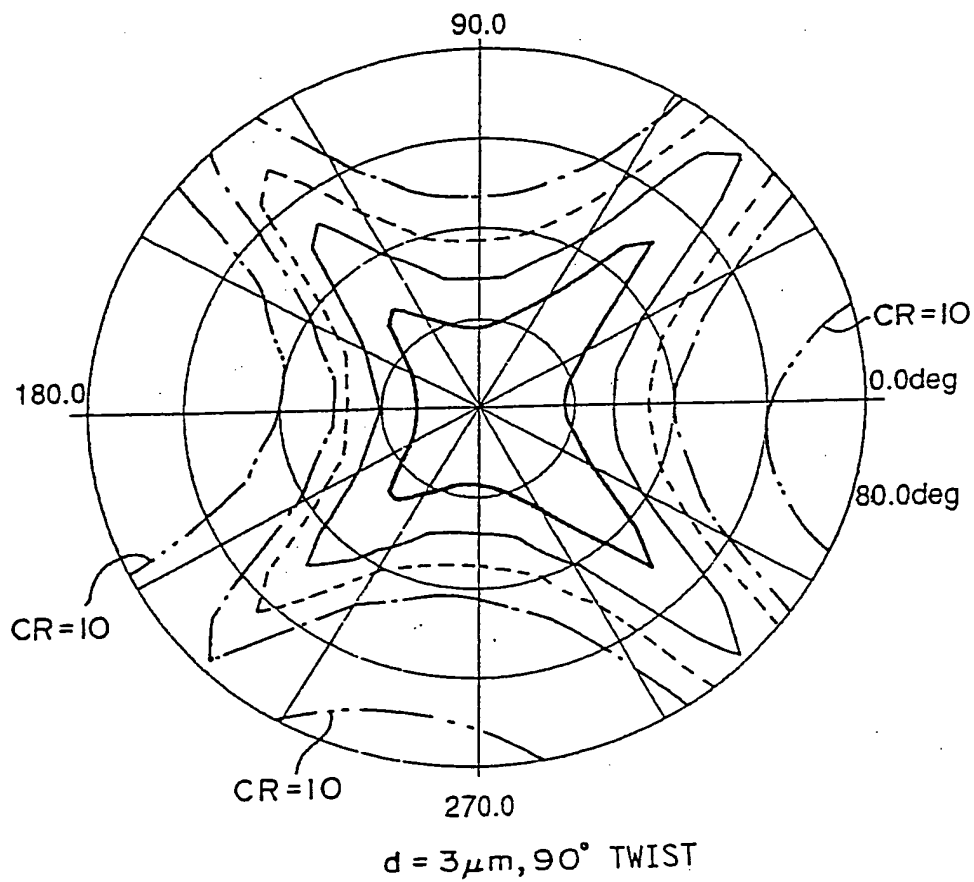


38
FIG. 38A

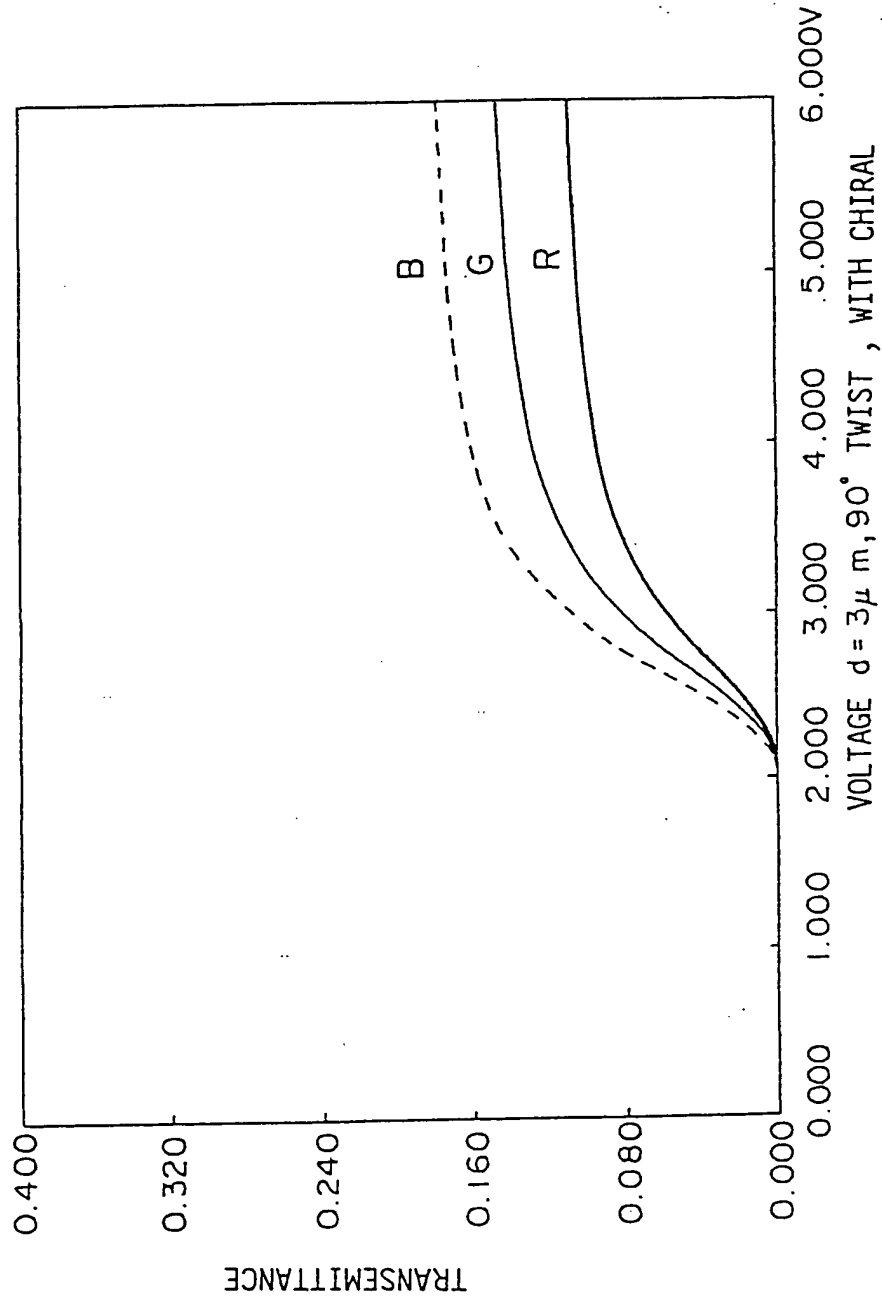


40
 FIG. 37

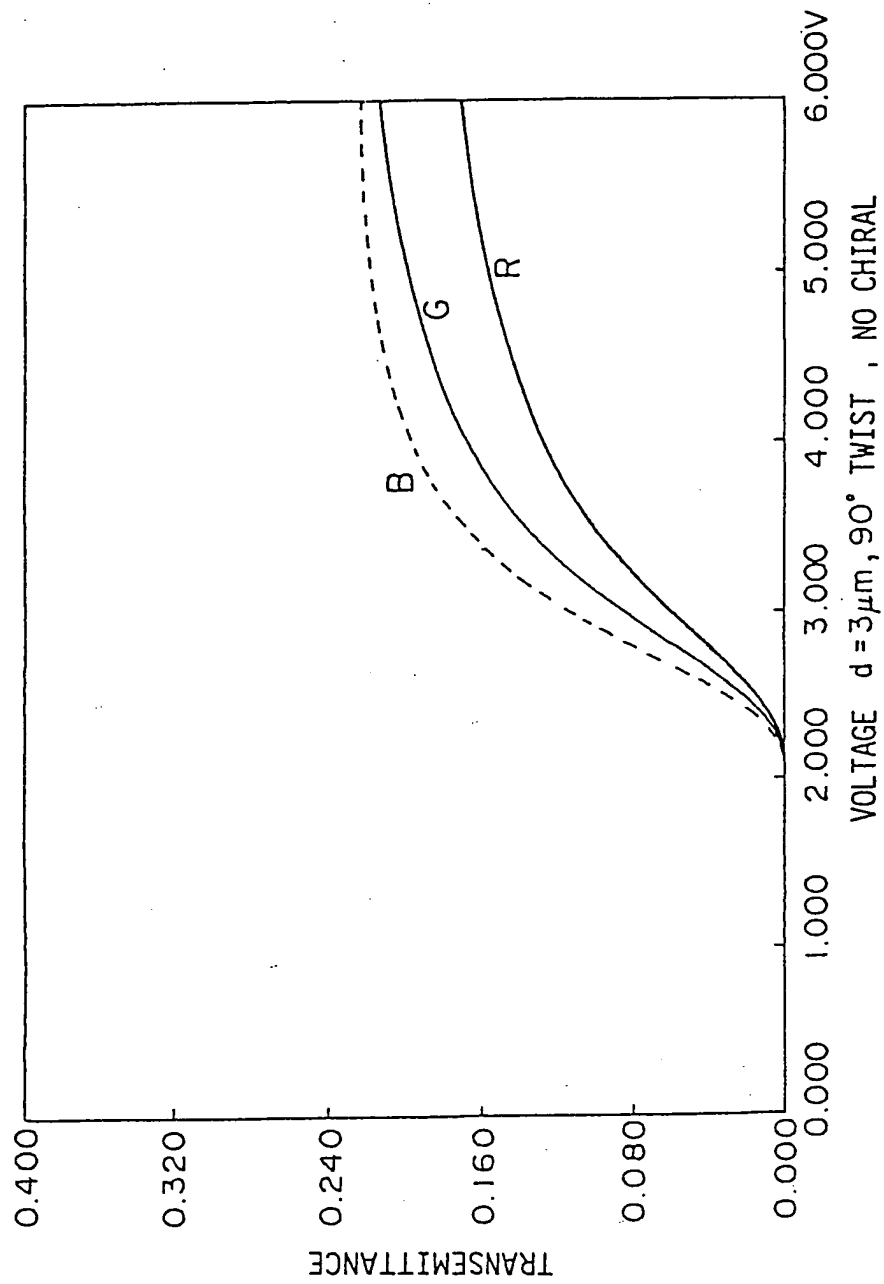
Contrast ratio	
————	500.000
————	200.000
-----	100.000
-----	50.000
-----	10.000



4/
FIG. 38

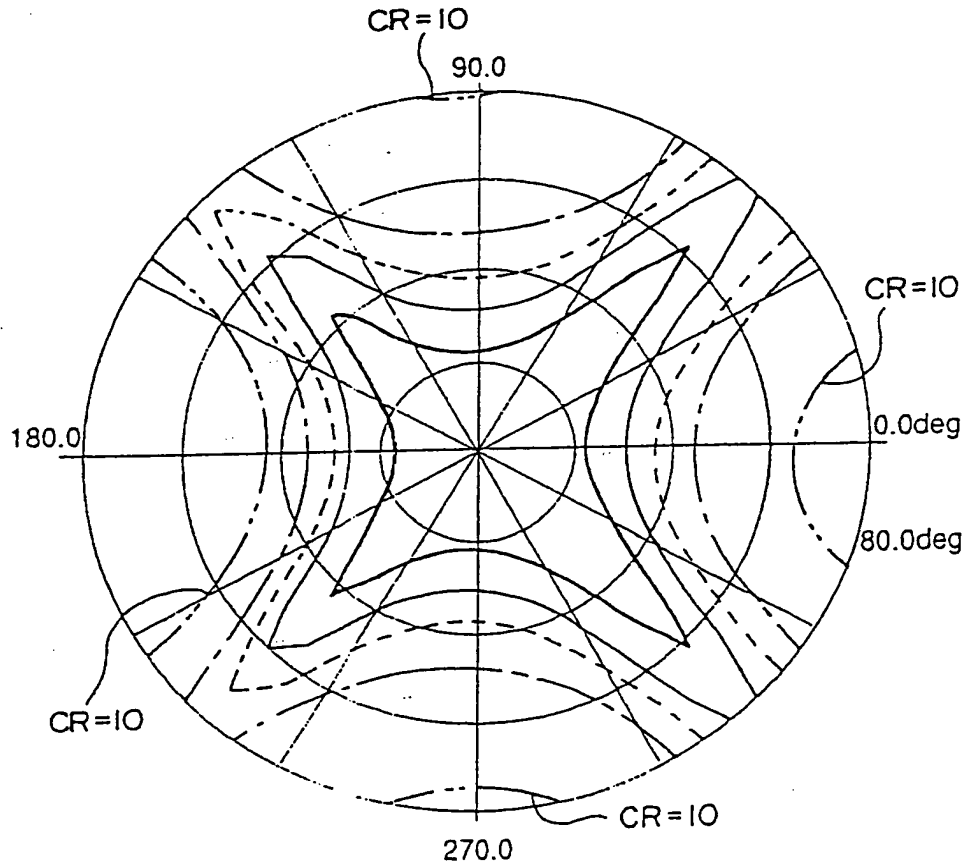


42
 FIG. 39



43
FIG. 40

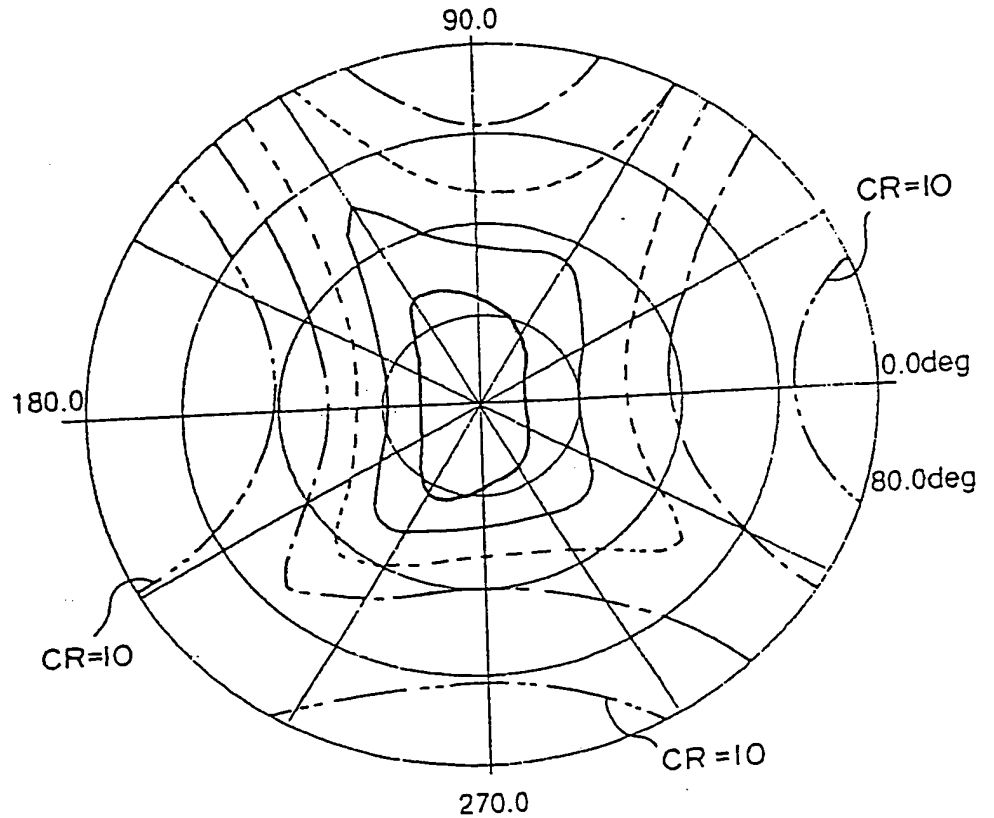
Contrast ratio	
————	500.000
————	200.000
-----	100.000
- - - - -	50.000
.....	10.000



PRETILT= 89.99°
CELL= 3μm, 45° TWIST

44
FIG. 41

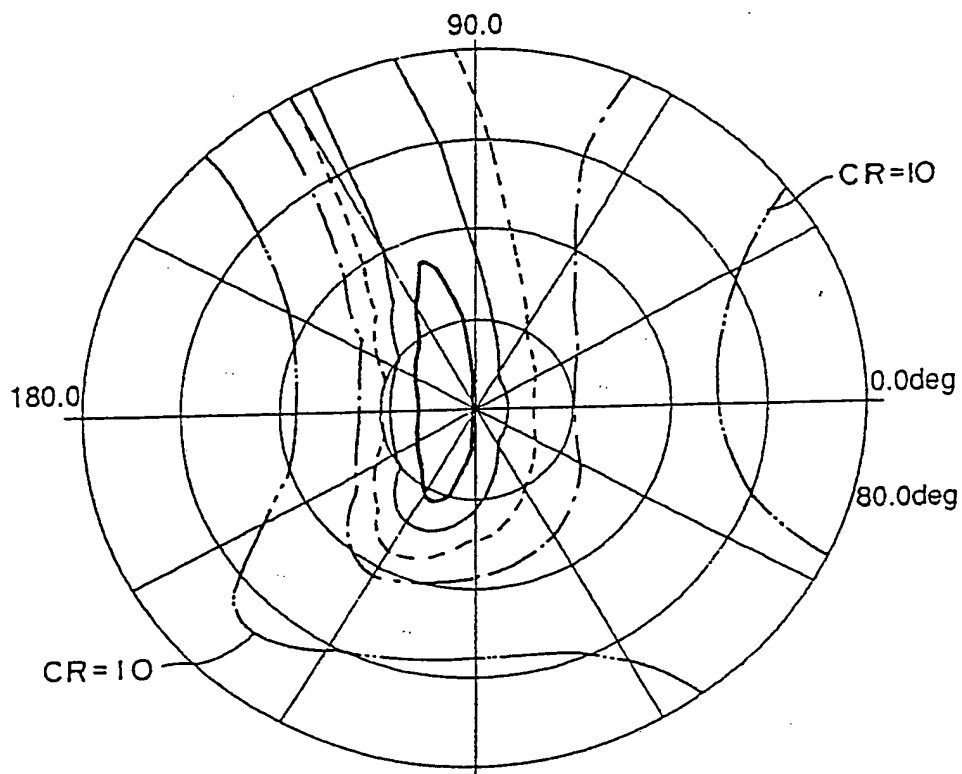
Contrast ratio	
————	500.000
————	200.000
-----	100.000
-----	50.000
-----	10.000



PRETILT = 85°
CELL = 3μm, 45° TWIST

45
FIG. 42

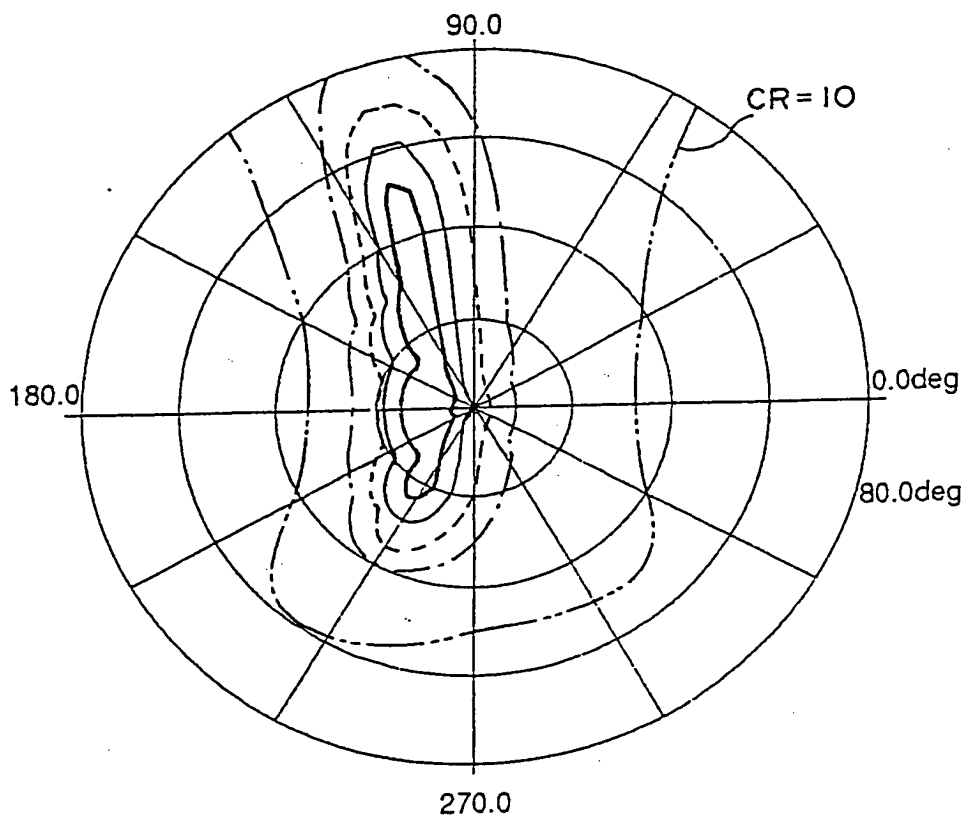
Contrast ratio	
————	500.000
————	200.000
-----	100.000
- - - - -	50.000
.....	10.000



PRETILT = 80°
CELL = 3 μm, 45° TWIST

46
FIG. 43

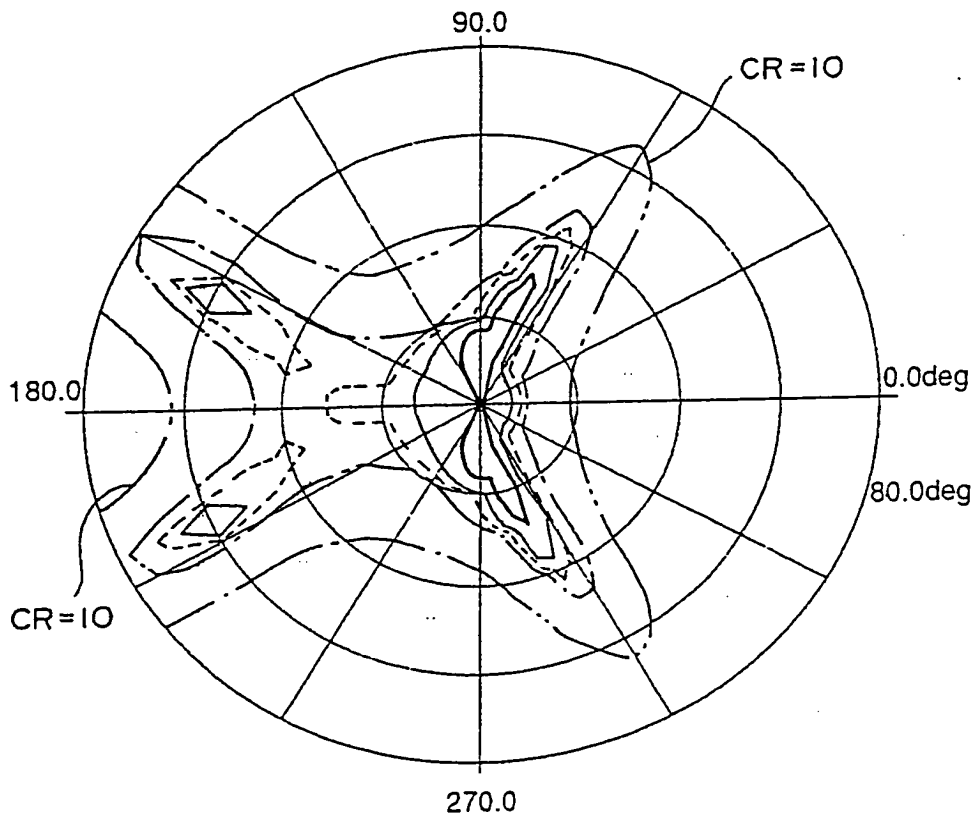
Contrast ratio	
————	500.000
————	200.000
-----	100.000
-----	50.000
-----	10.000



PRETILT = 75°
CELL = 3 μ m, 45° TWIST

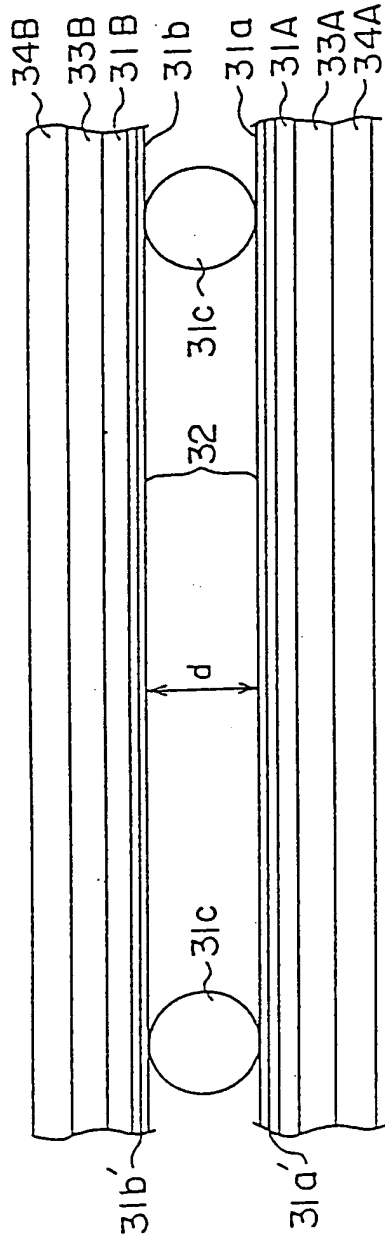
217
FIG. 44
PRIOR ART

Contrast ratio	
————	500.000
————	200.000
- - - - -	100.000
· · · · ·	50.000
- · - · -	10.000

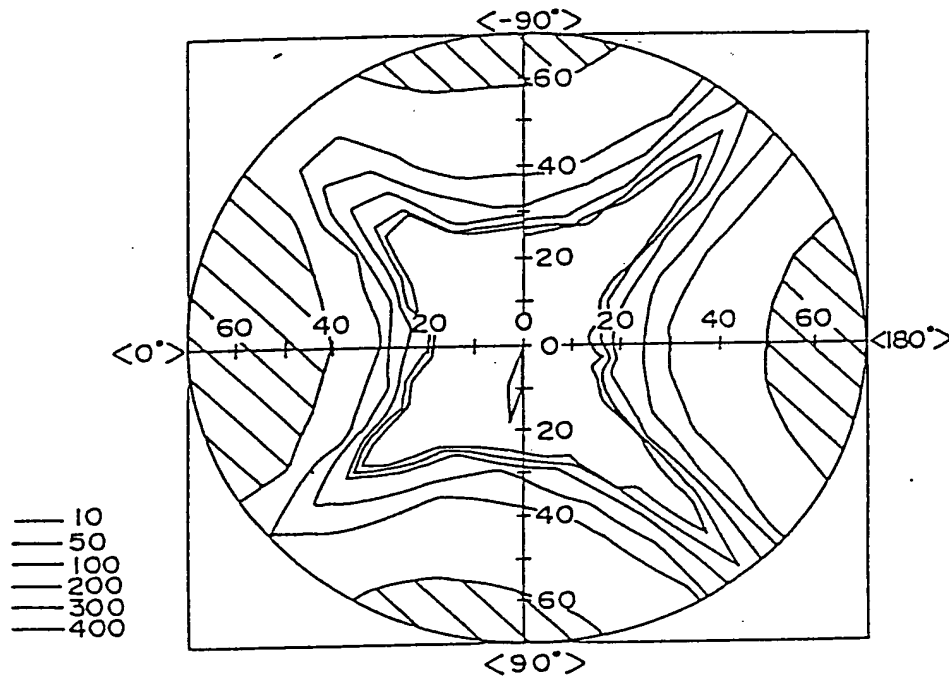


28
 FIG. 45

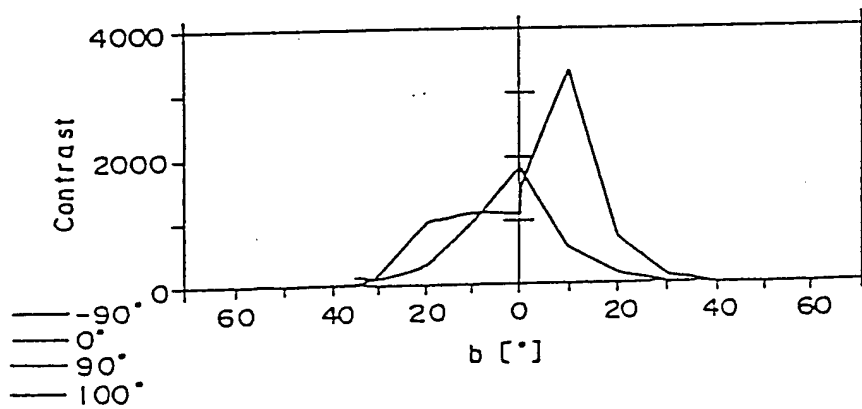
30



49A
 FIG. 46A



49B
 FIG. 46B



50A
 FIG. 47A

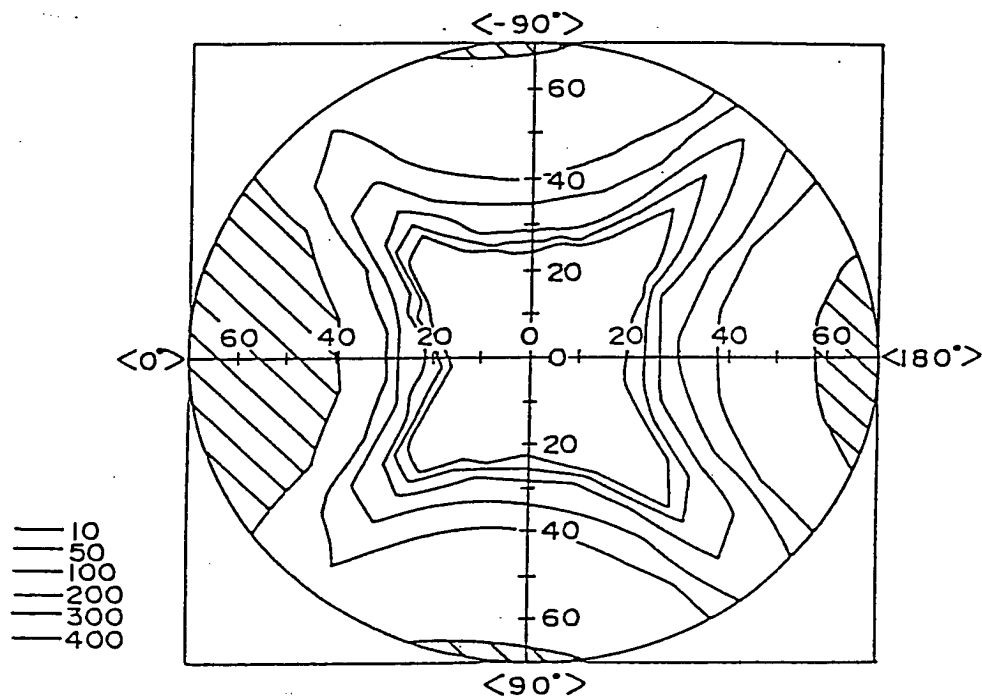
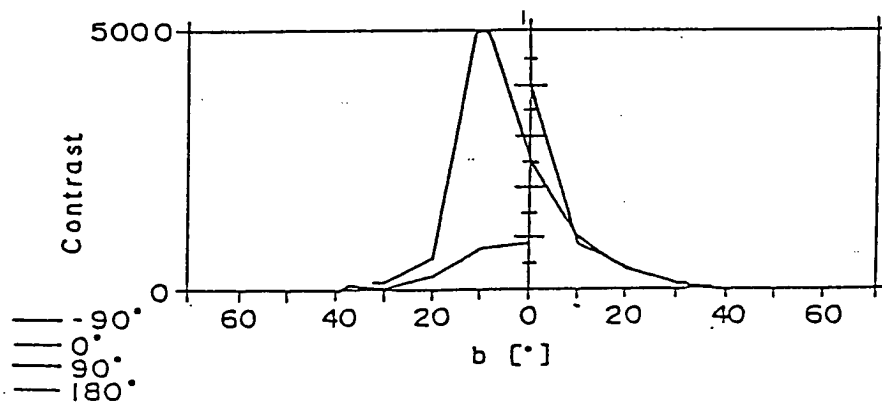
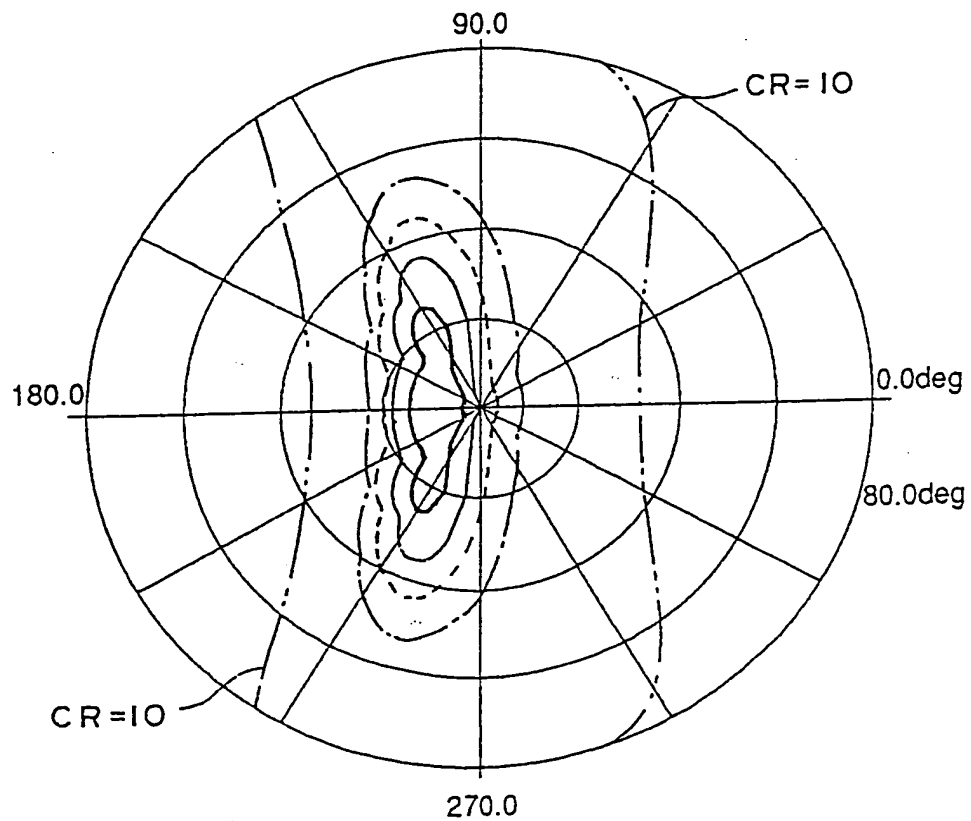


FIG. 47B 50B



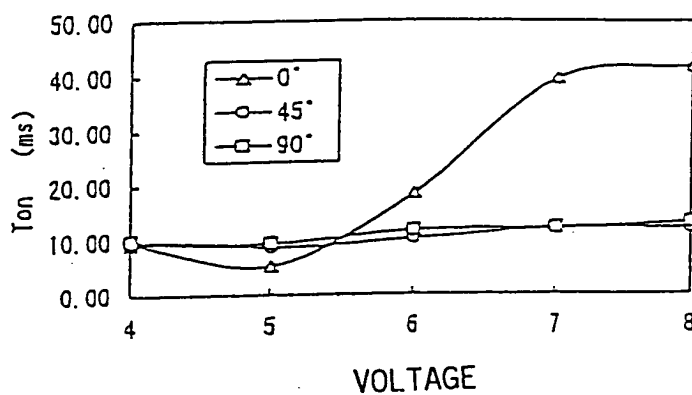
51
FIG. 48

Contrast ratio	
————	500.000
————	200.000
- - - - -	100.000
— · — · —	50.000
— · — · —	10.000

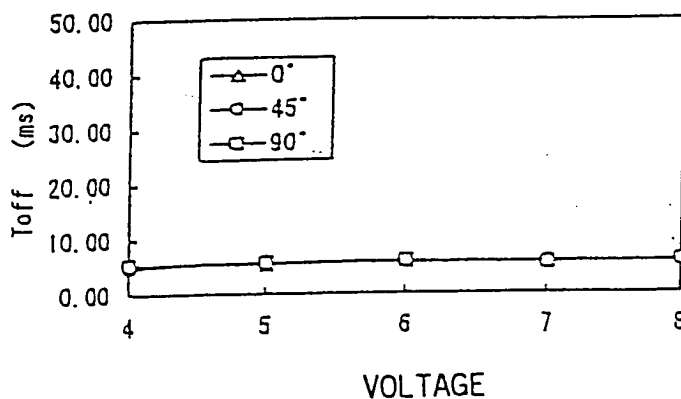


PRITILT = 75°
CELL = 3μm, 45° TWIST

52
FIG. 49

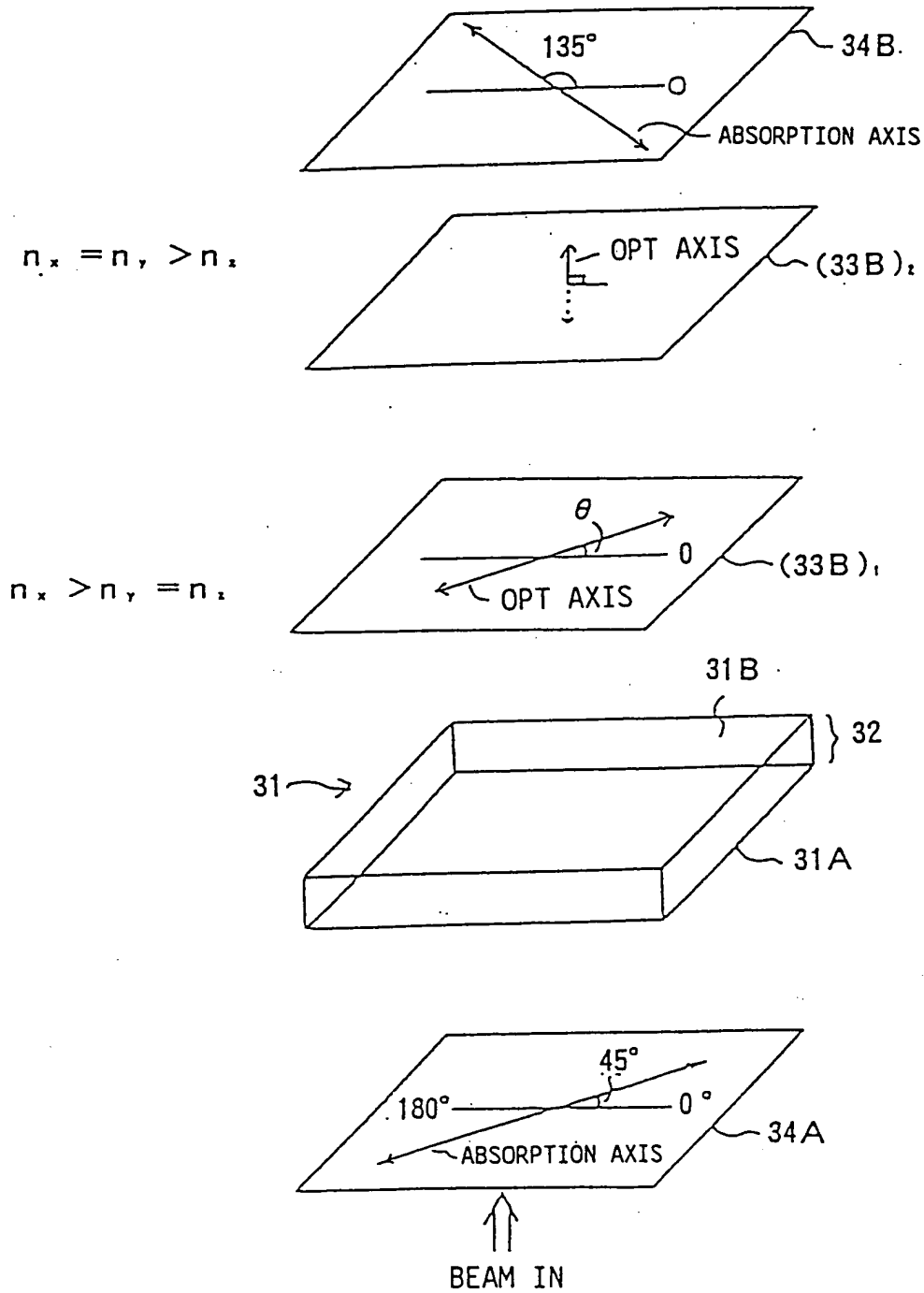


53
FIG. 50



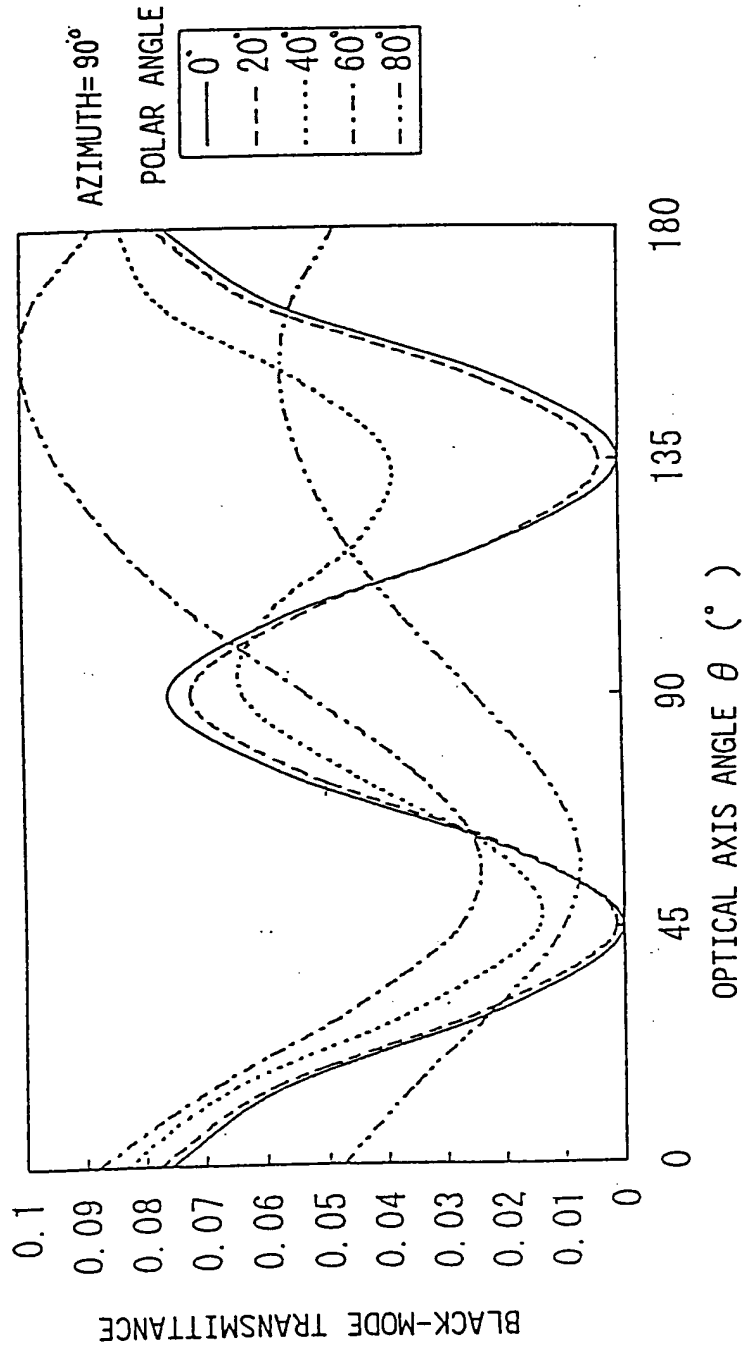
54
 FIG. 51

40

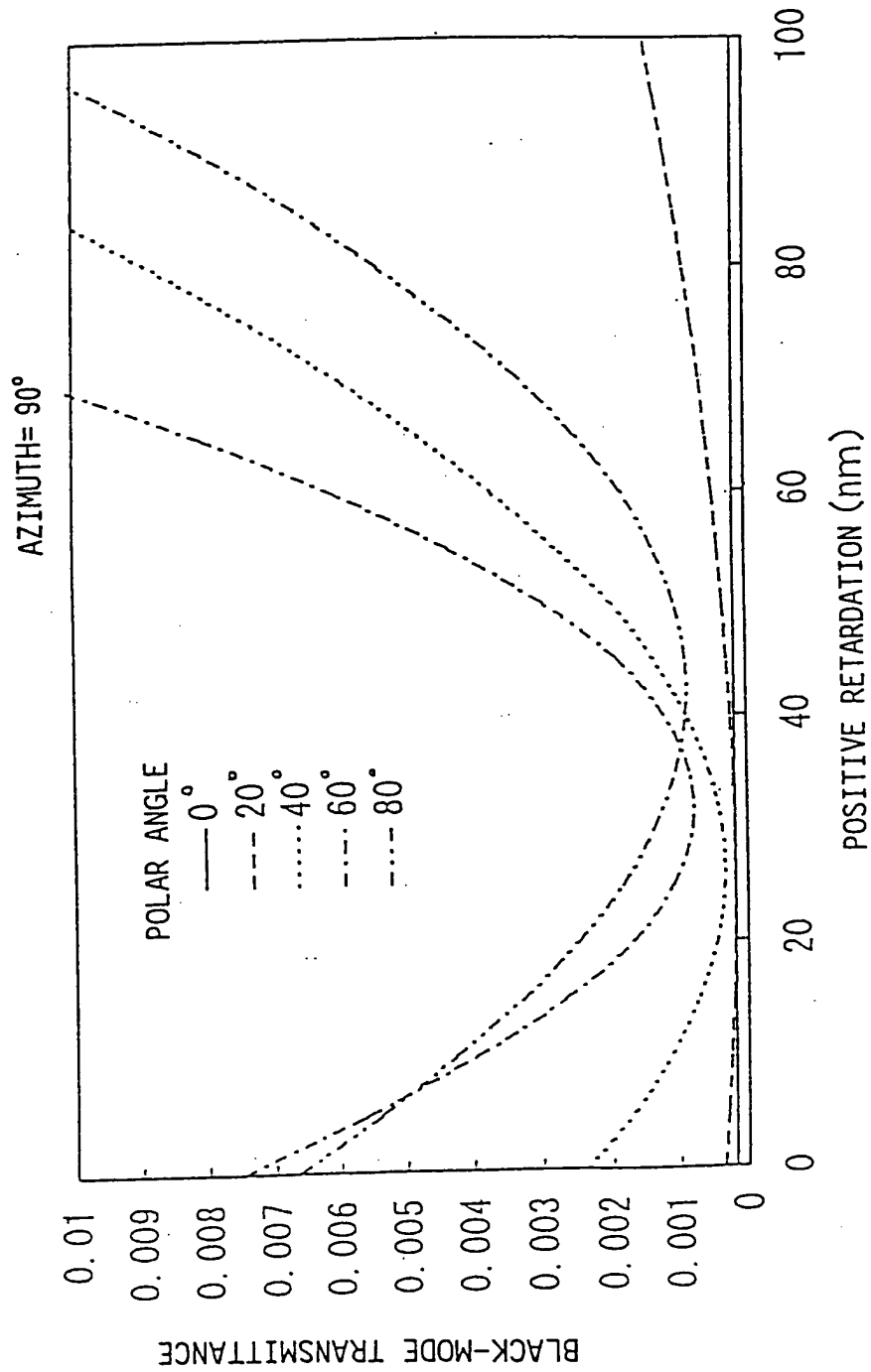


55

FIG. 52



56
 FIG. 53



【図 57】

FIG 57

図 5 4 の液晶表示装置の視角特性を示す図

Contrast ratio	
————	500.000
-----	200.000
-----	100.000
-----	50.000
-----	10.000

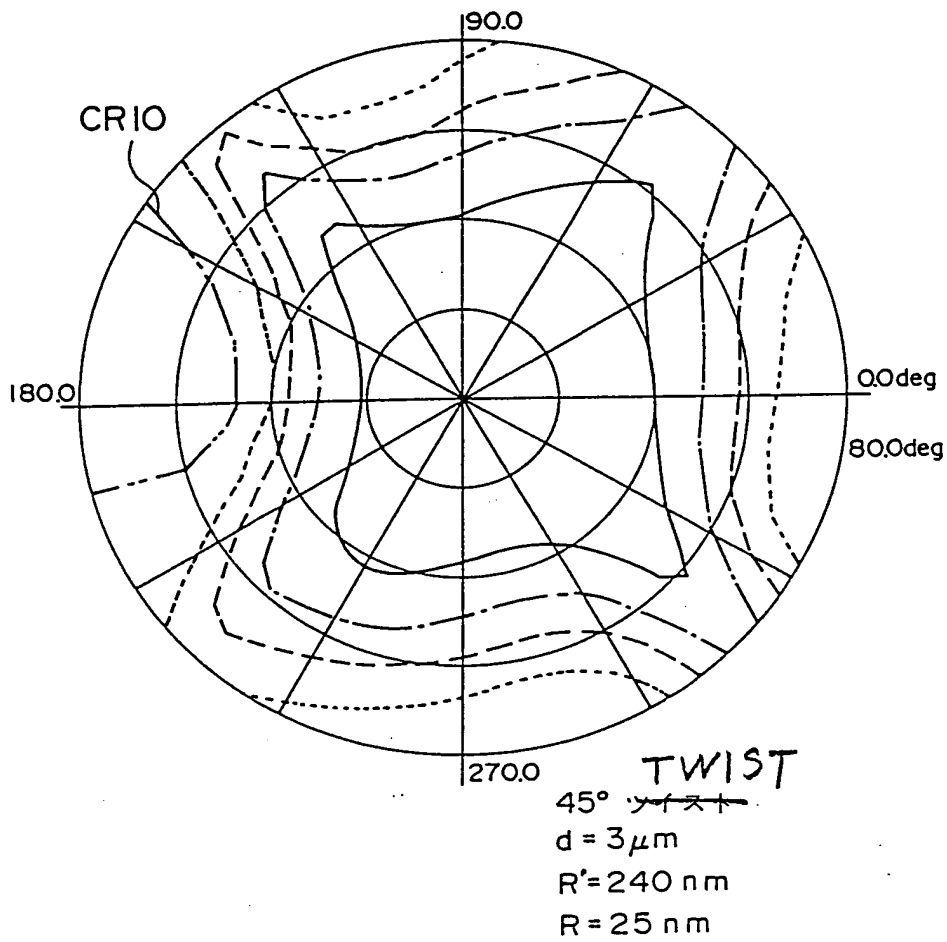
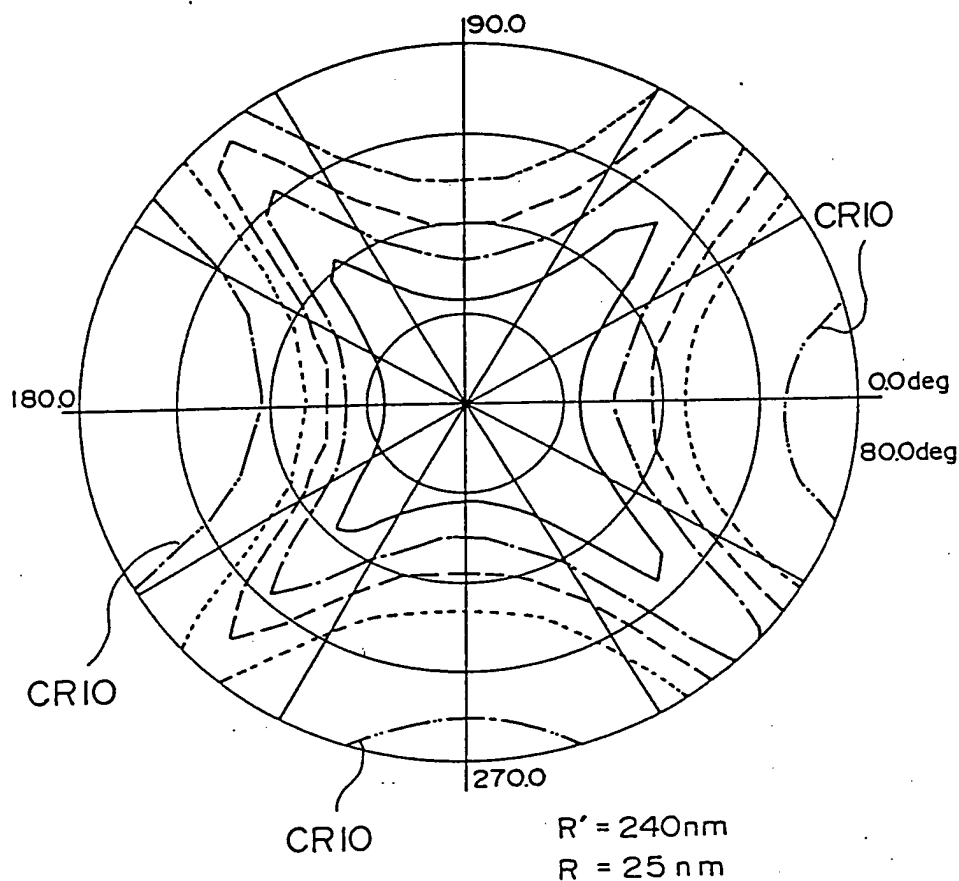


FIG 58

【図 58】

図 5 4 の液晶表示装置において、正の位相差補償フィルムと負の位相差補償フィルムの順序を反転した場合の視角特性を示す図

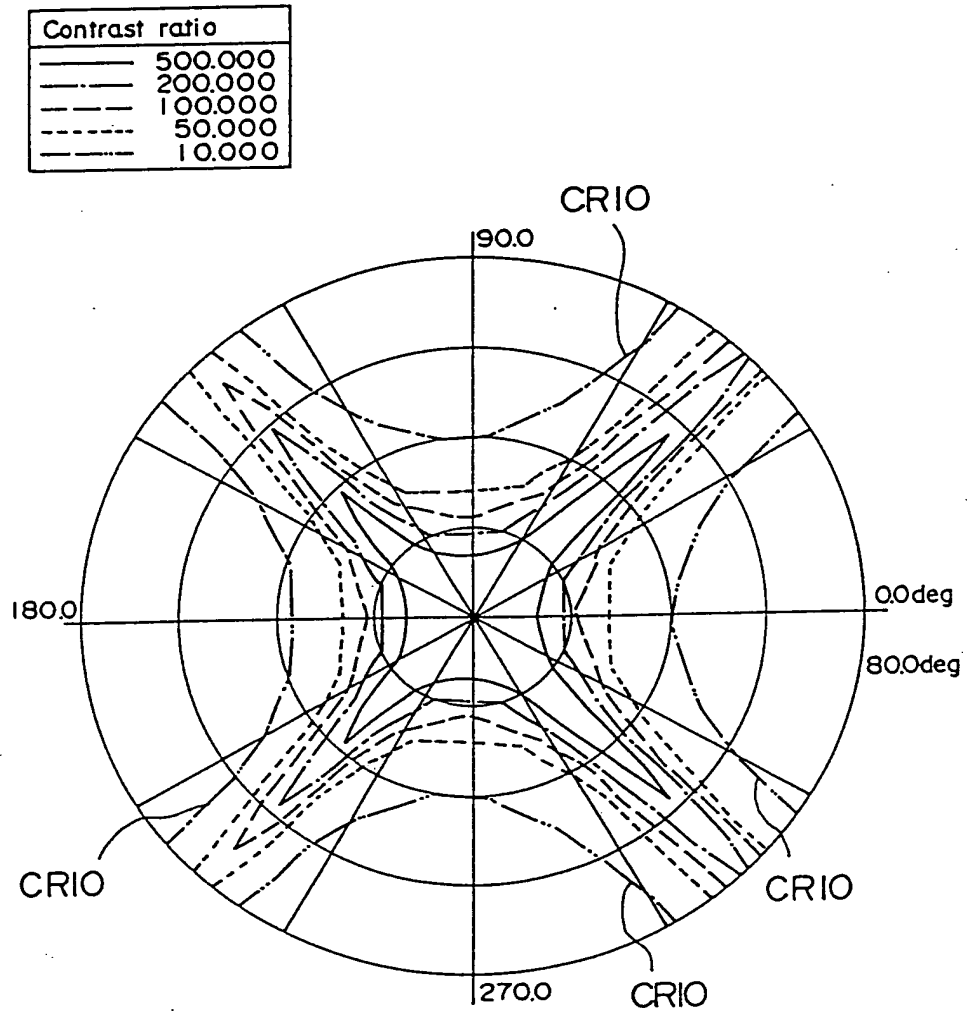
Contrast ratio	
————	500.000
-----	200.000
-----	100.000
-----	50.000
-----	10.000



【図 59】

FIG 59

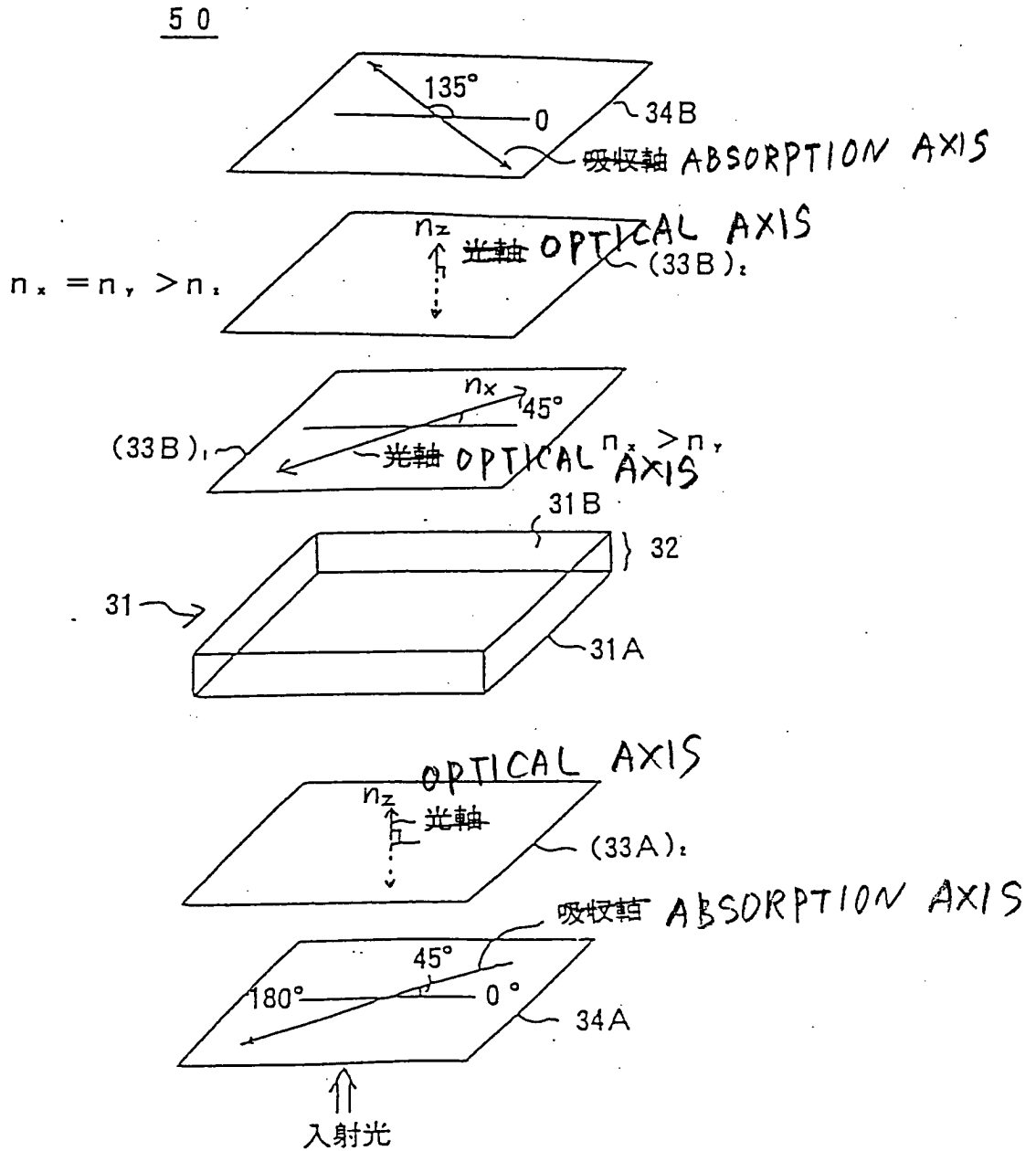
図 5 4 の液晶表示装置において位相差補償フィルム
を省略した場合の視角特性を示す図



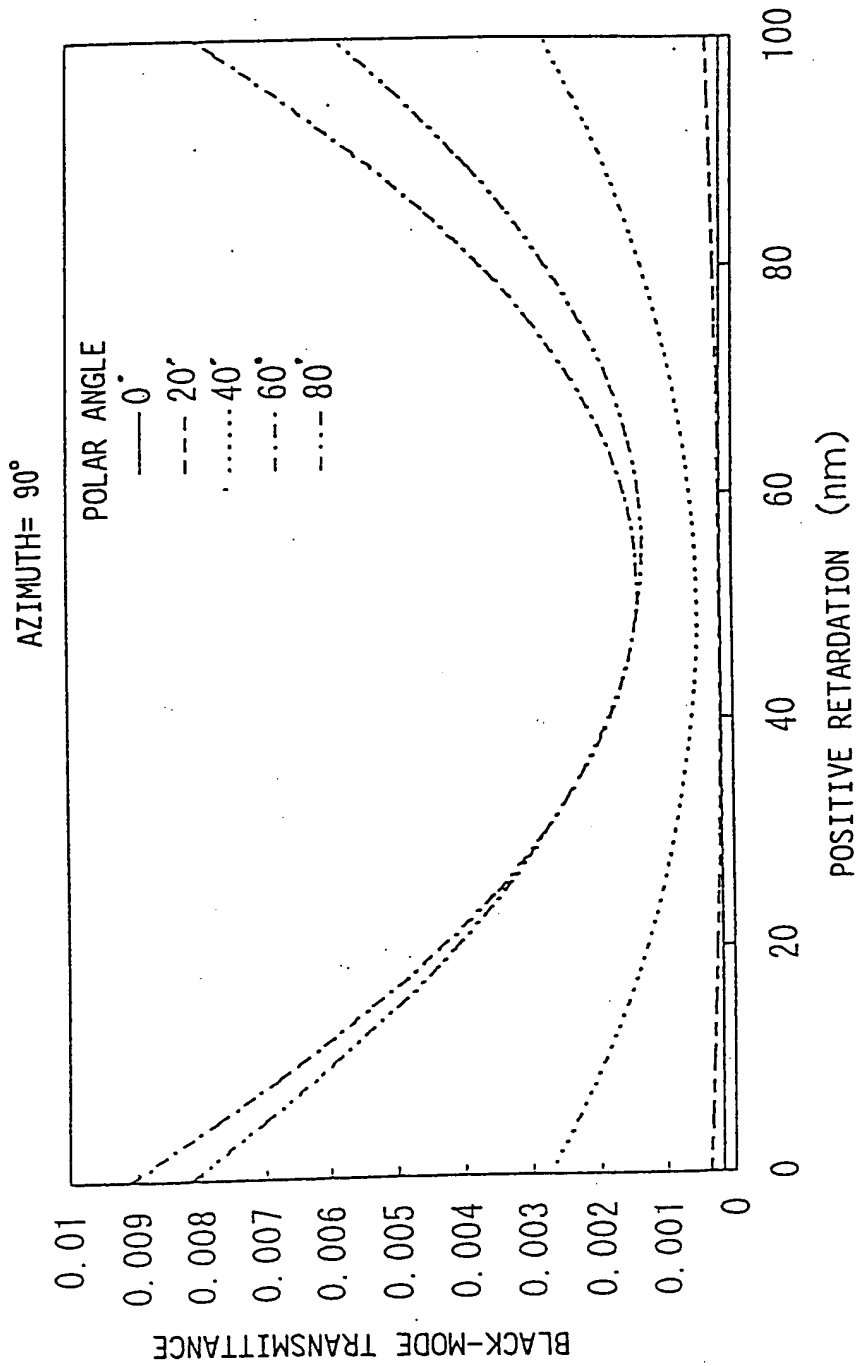
60
 [図 50]

FIG 60

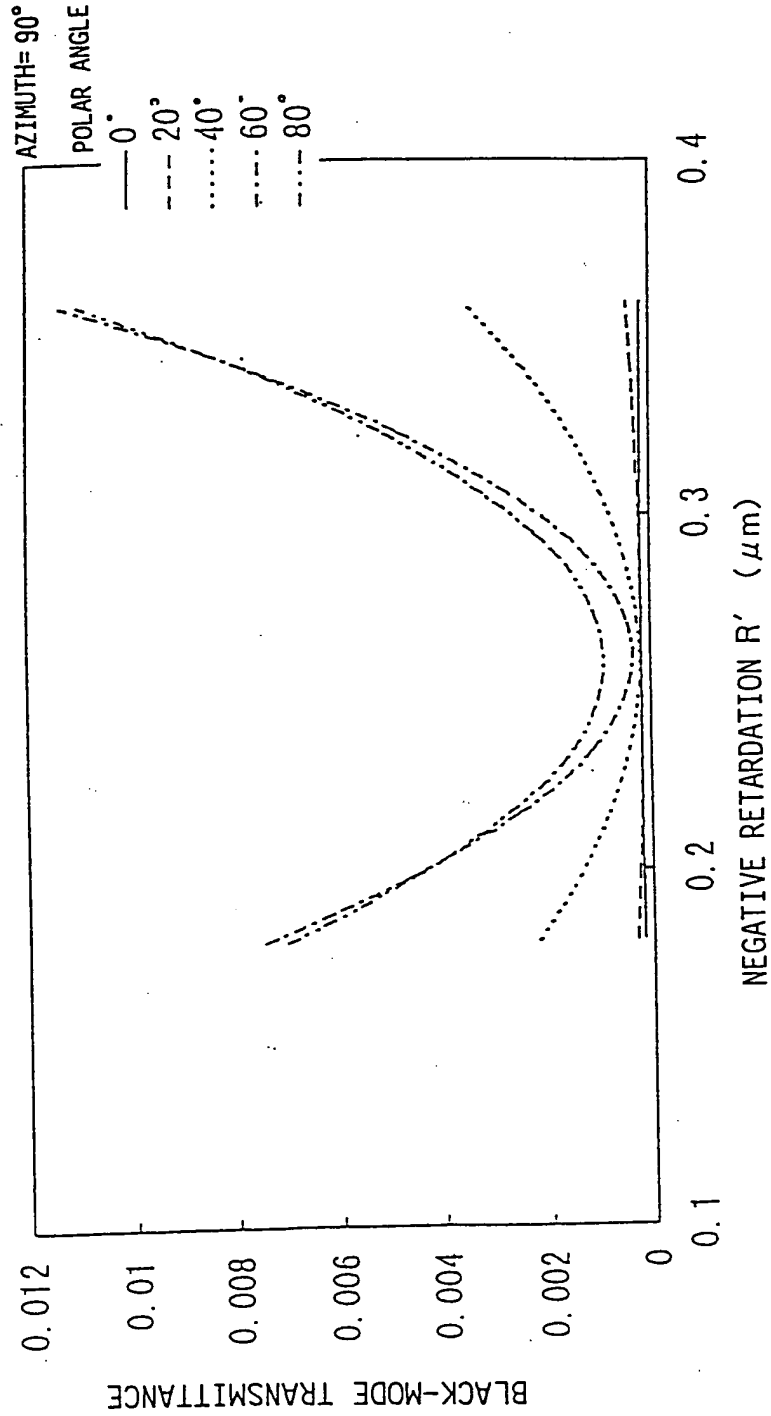
本発明の第4実施例による液晶表示装置の構成を示す図








61
 FIG. 54

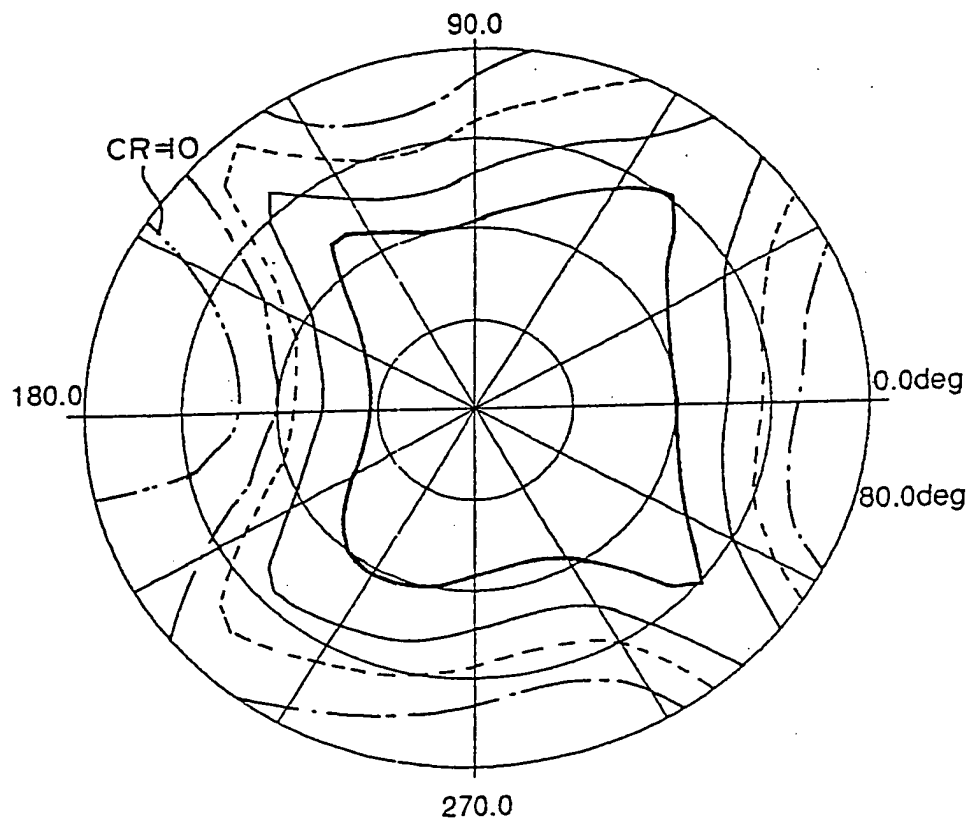


62
 FIG. 58



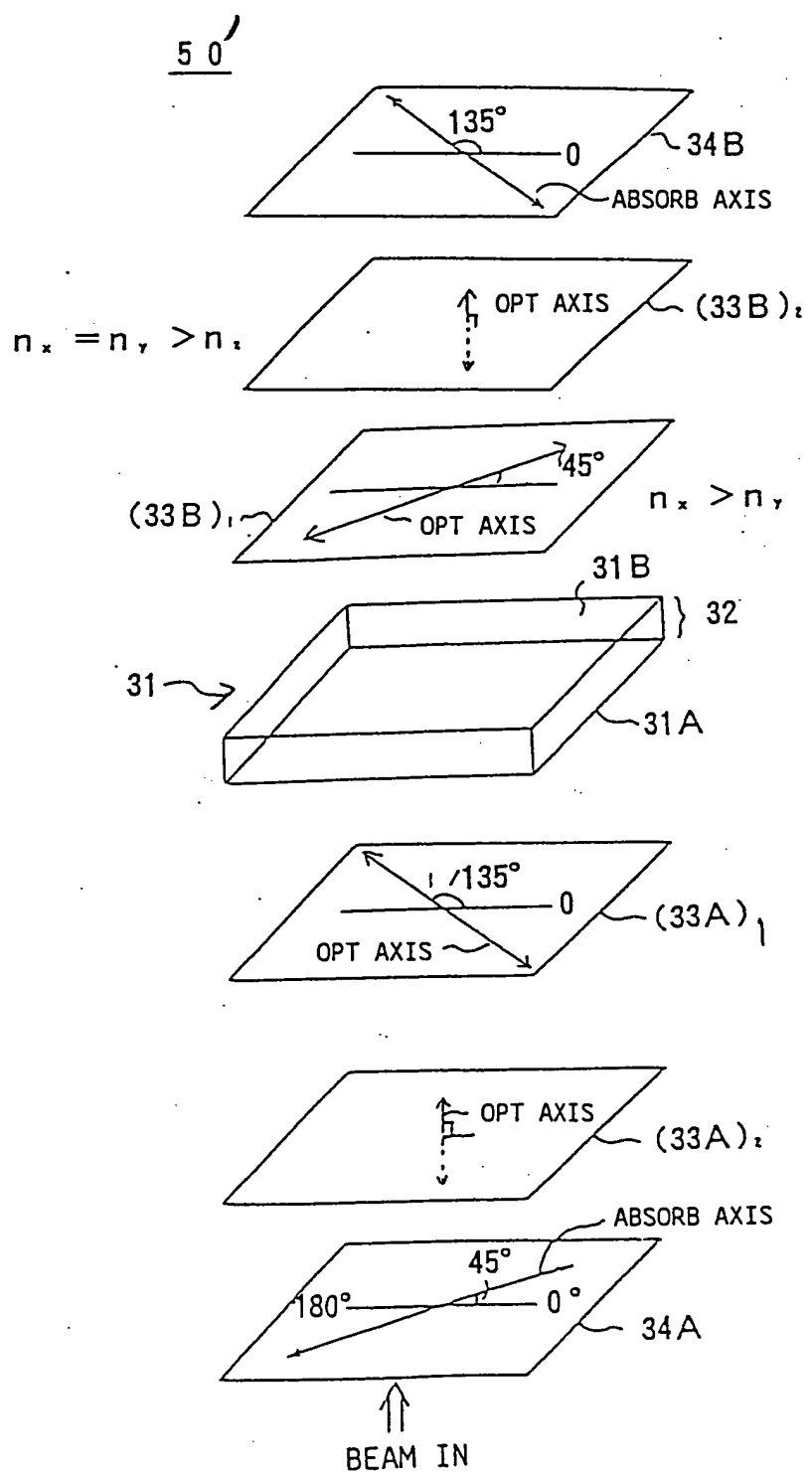
63
FIG. 56

Contrast ratio	
	500.000
	200.000
	100.000
	50.000
	10.000

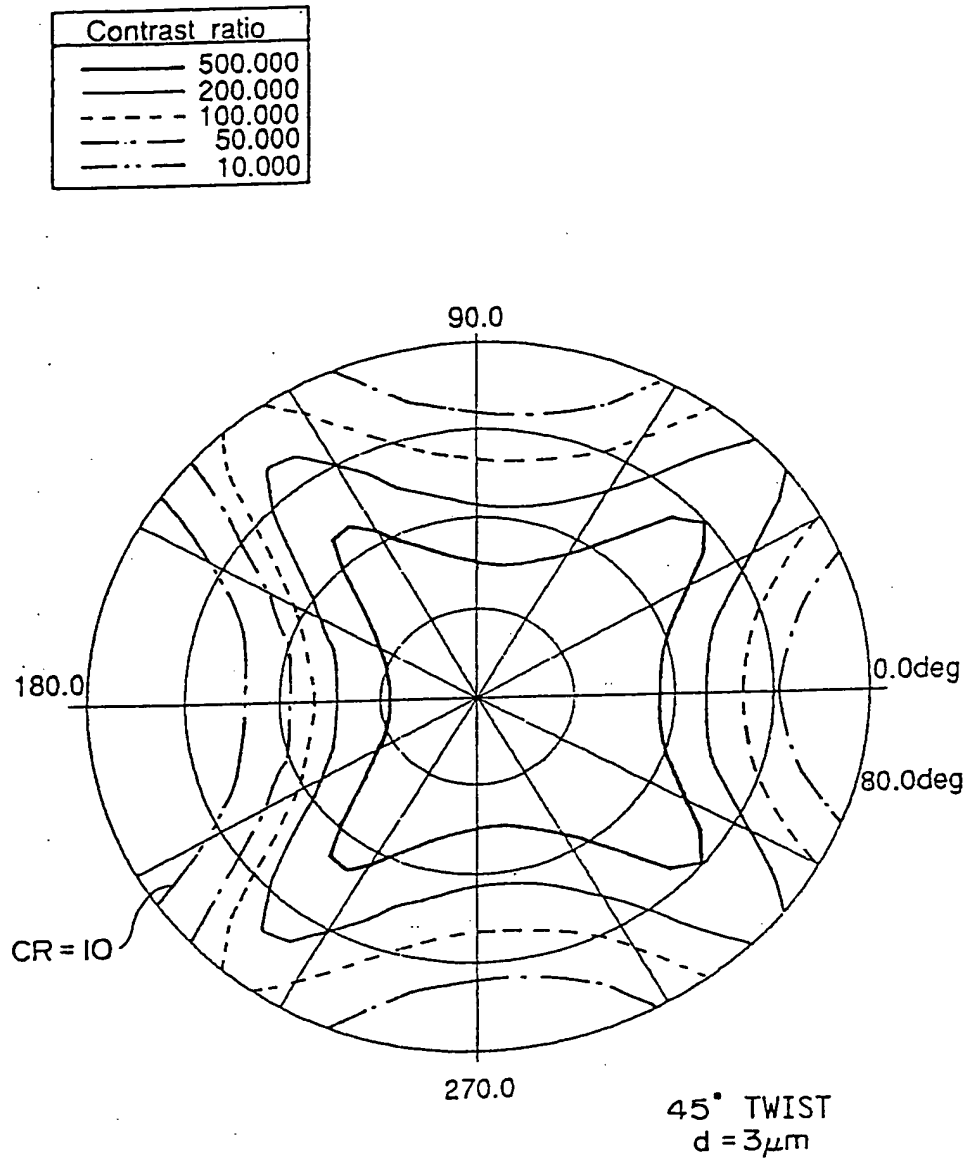


5th

64
 FIG. 57



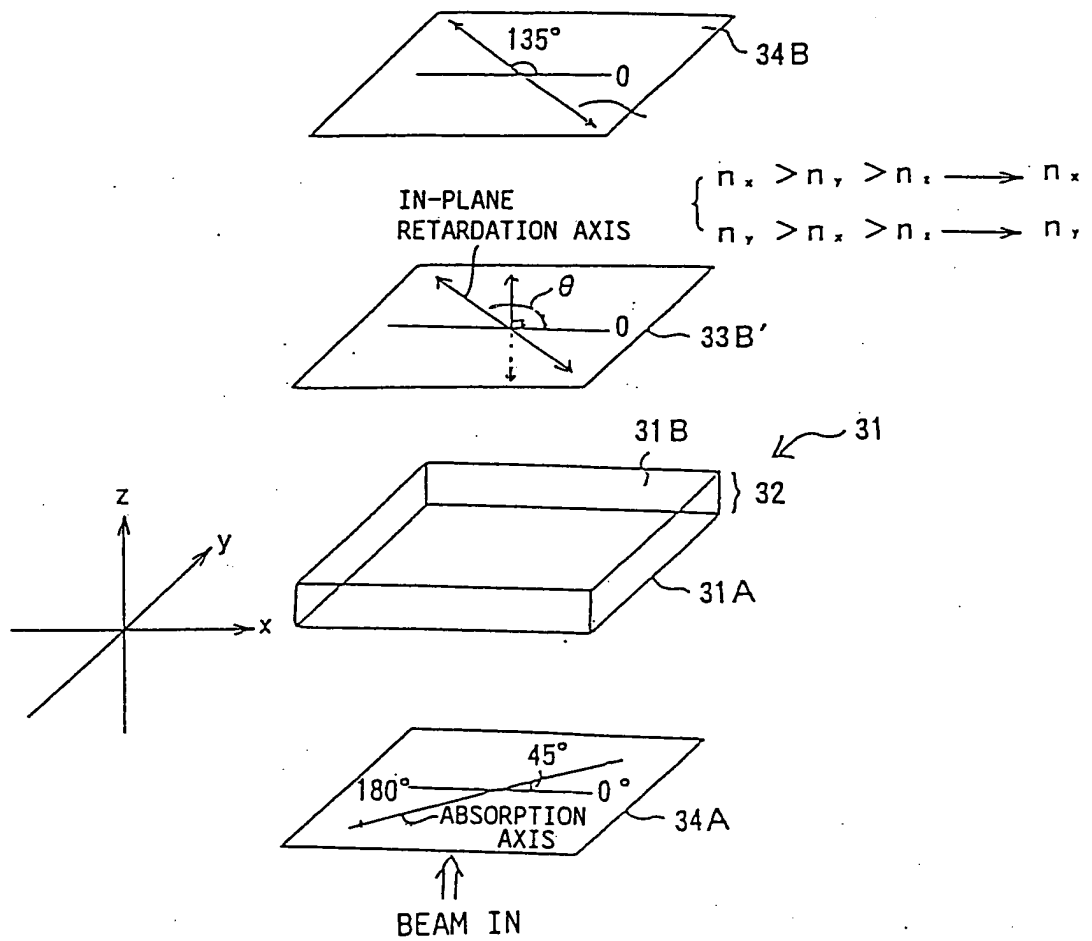
65
FIG. 58



674

66
 FIG. 59

60

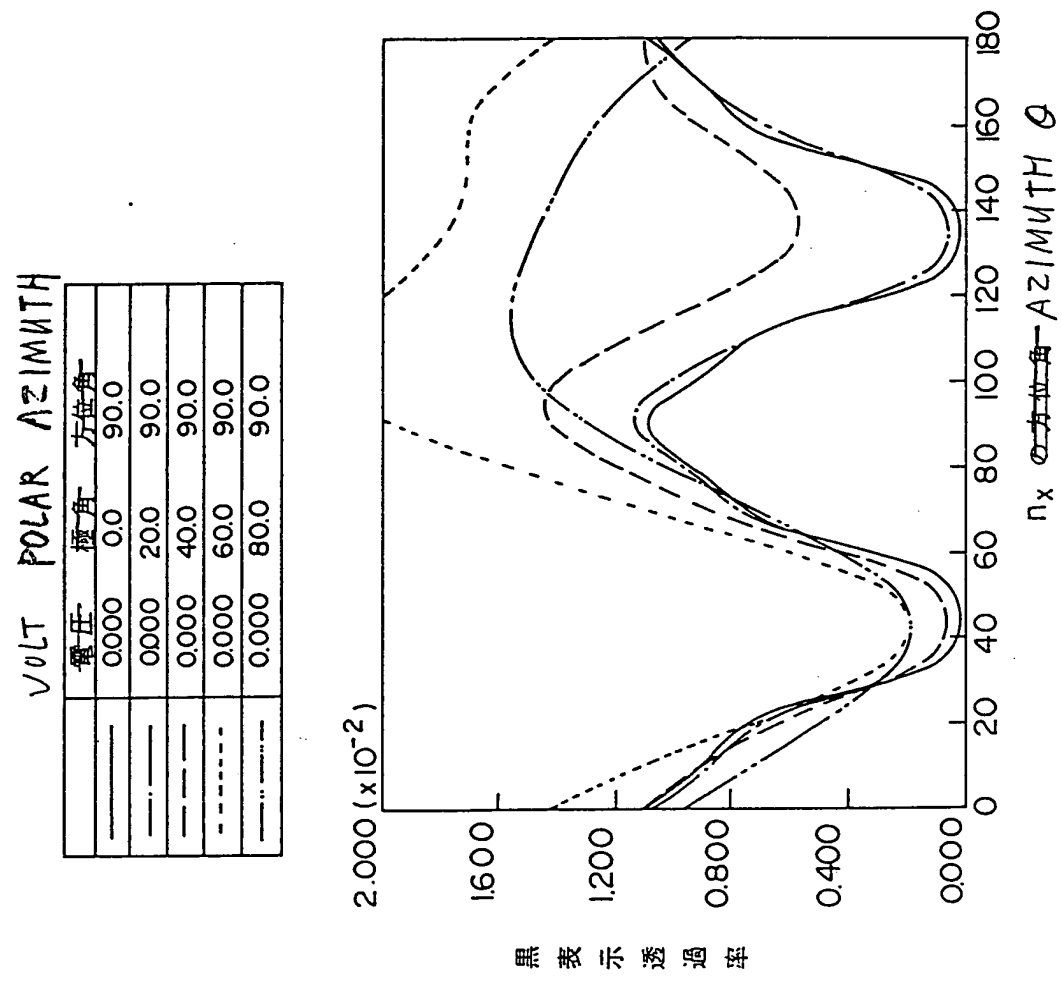


AF96-04207

【図 67】

図 6 6 の液晶表示装置の黒表示状態の透過率を示す図

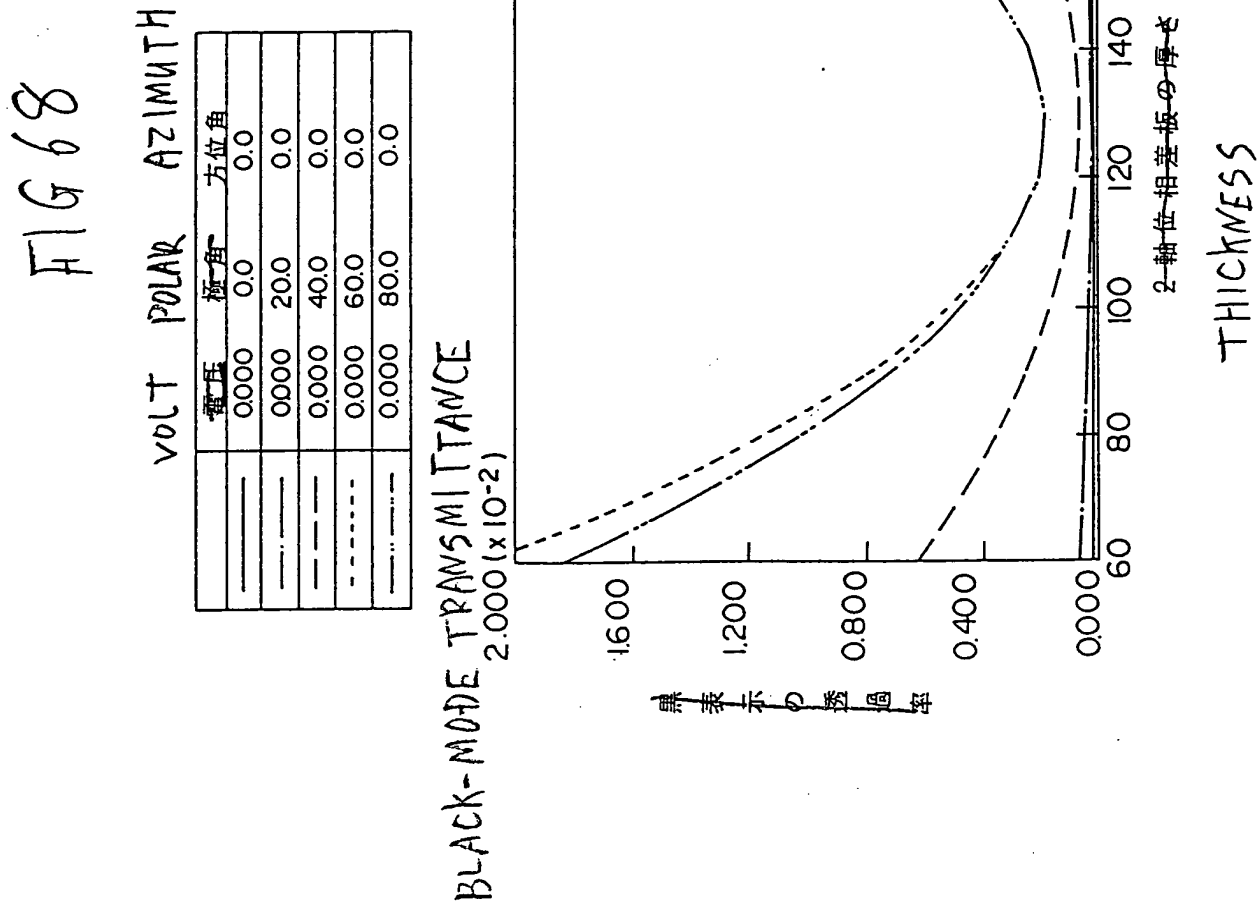
FIG 67



RF 96-04267

【図 68】

図 6 6 の液晶表示装置の黒表示状態の透過率を示す別の図

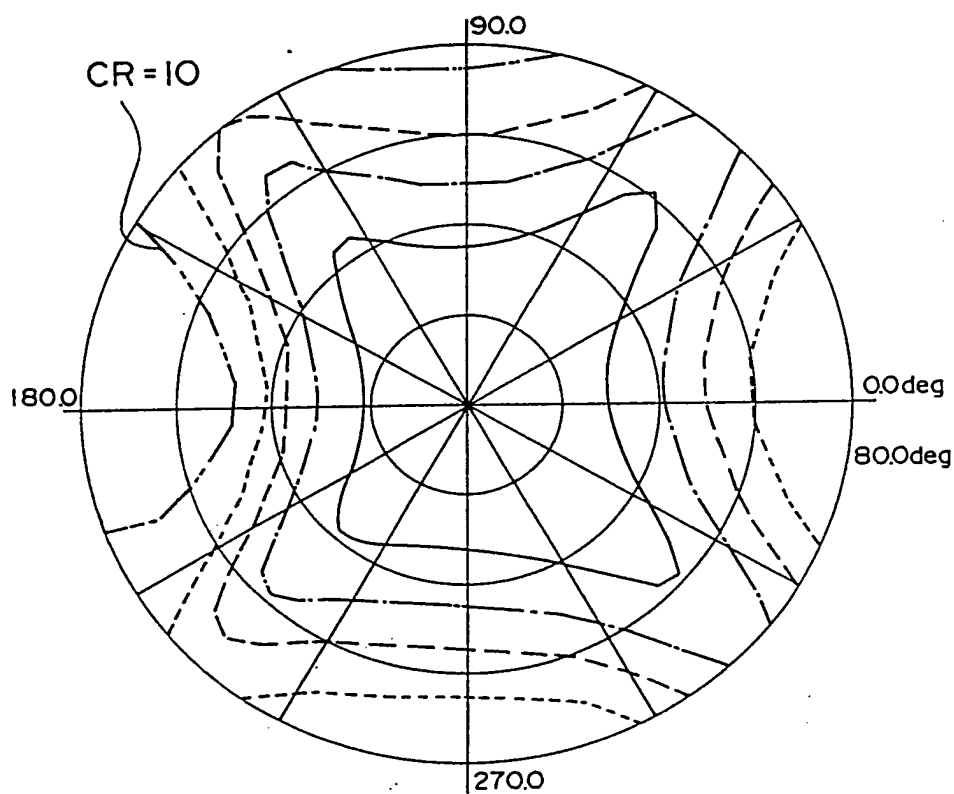


【図 69】

FIG 69

図 6 6 の液晶表示装置の視角特性を示す図

Contrast ratio	
————	500.000
————	200.000
-----	100.000
-----	50.000
-----	10.000

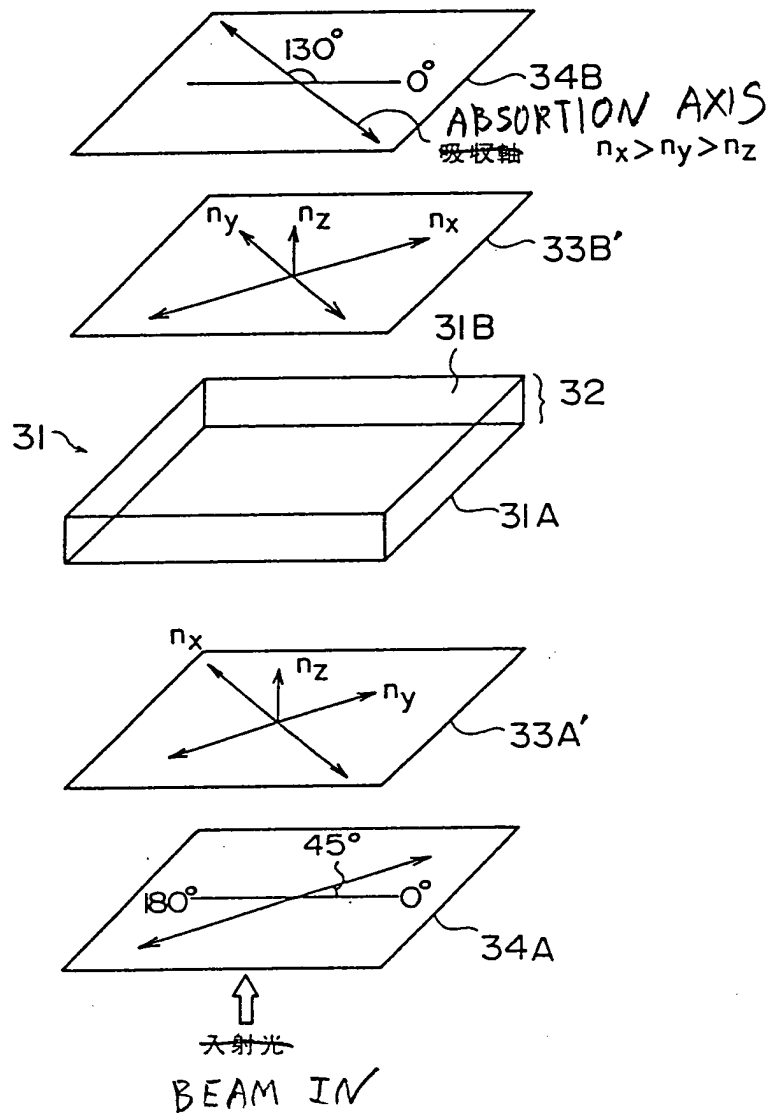


【図 70】

FIG 70

本発明の第7実施例による液晶表示装置の構成を示す図

70

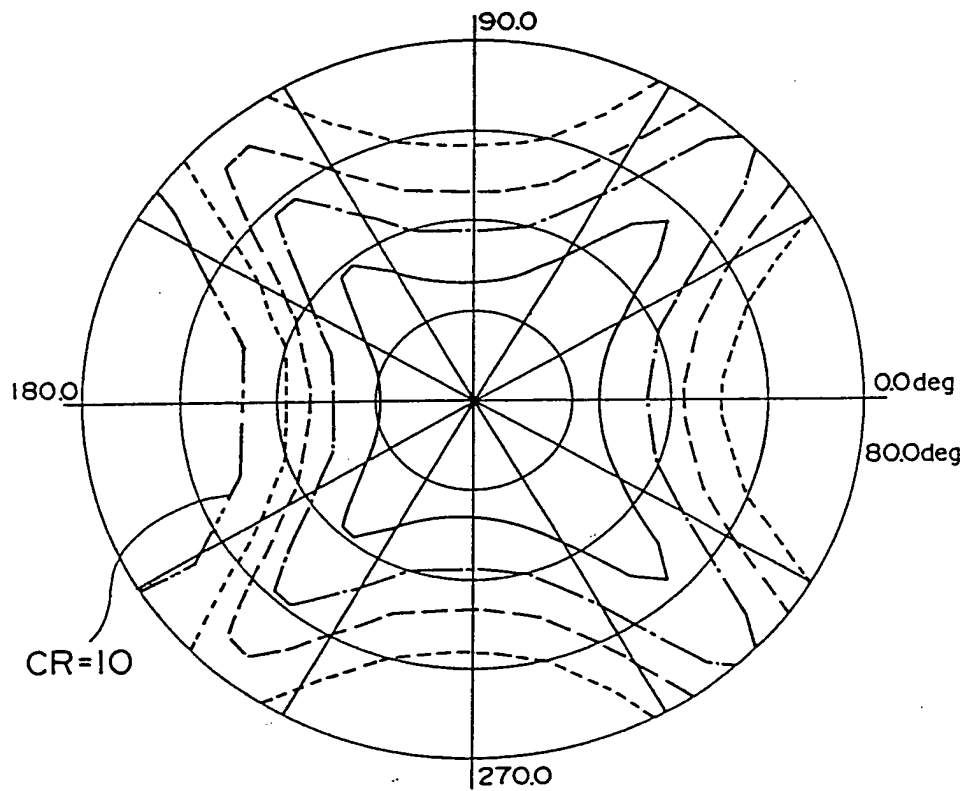


【図 71】

FIG 71

図 7 0 の液晶表示装置の視角特性を示す図

Contrast ratio	
————	500.000
-----	200.000
-----	100.000
-----	50.000
-----	10.000



【図 72】

FIG 72

本発明の第 8 実施例による液晶表示装置の構成を示す図

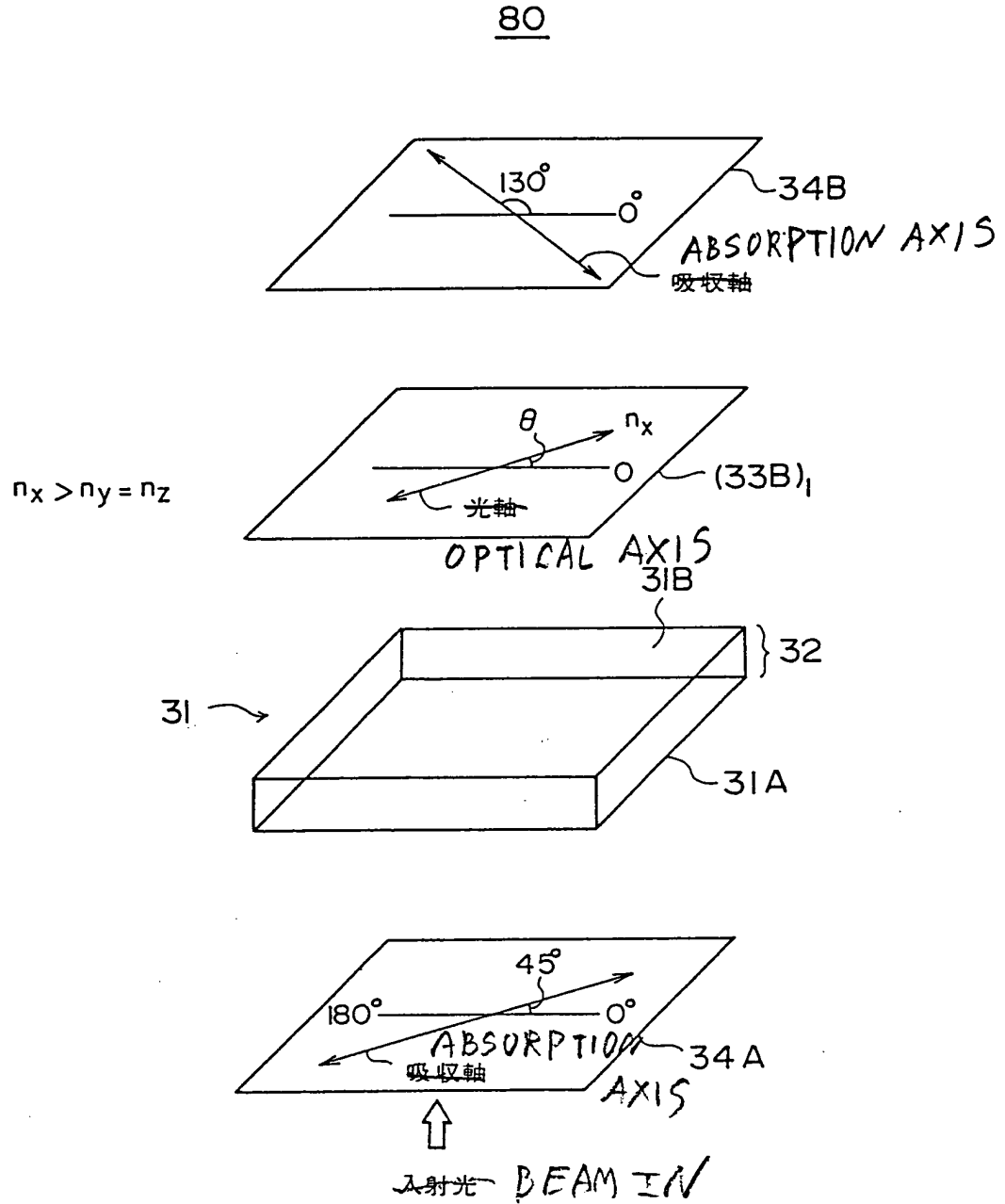
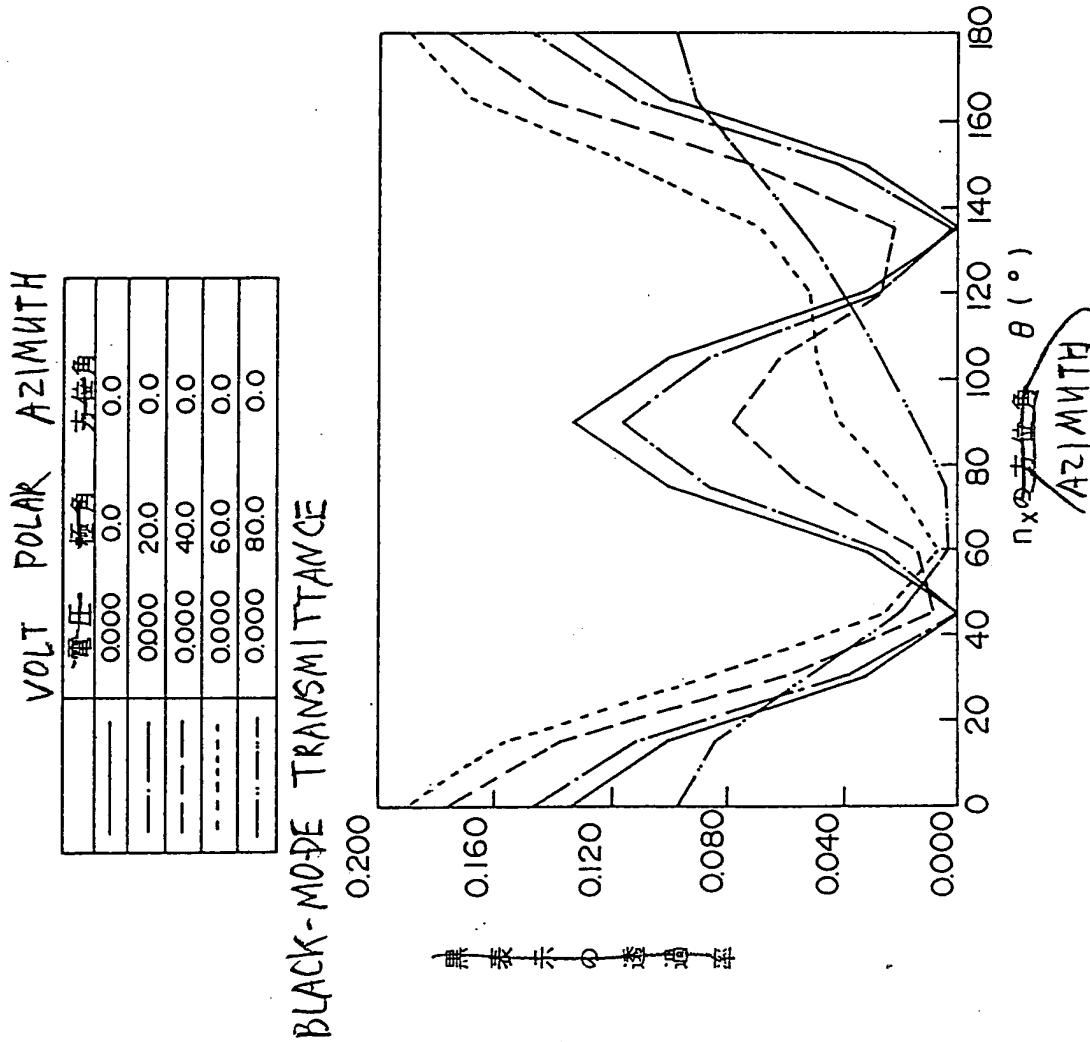


FIG 73

【図 73】

図 7 2 の液晶表示装置における黒表示状態の透過率を示す図

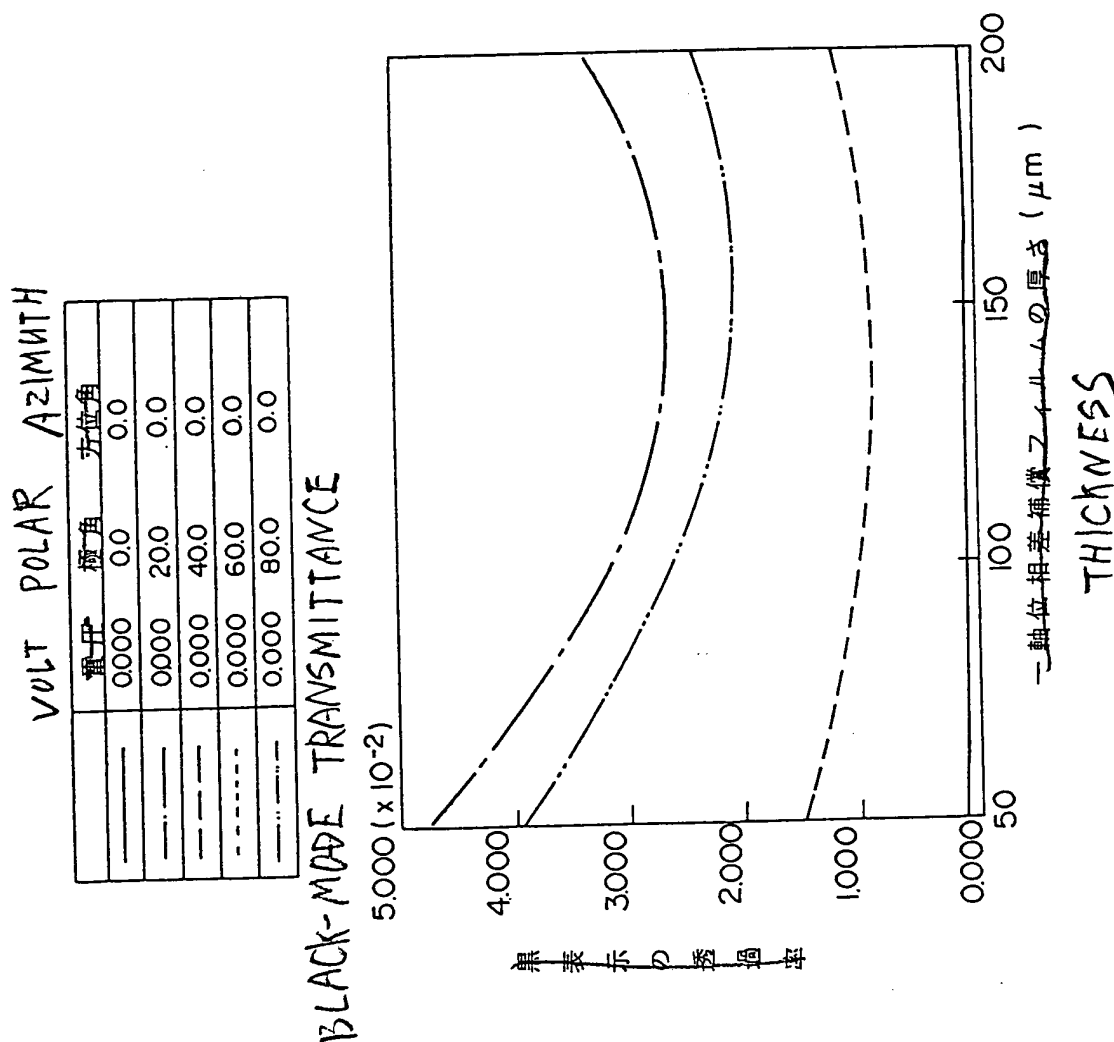


SF 96-04267

FIG 74

【図 74】

図 7 2 の液晶表示装置における黒表示状態の透過率を示す図



NT 86-0426,

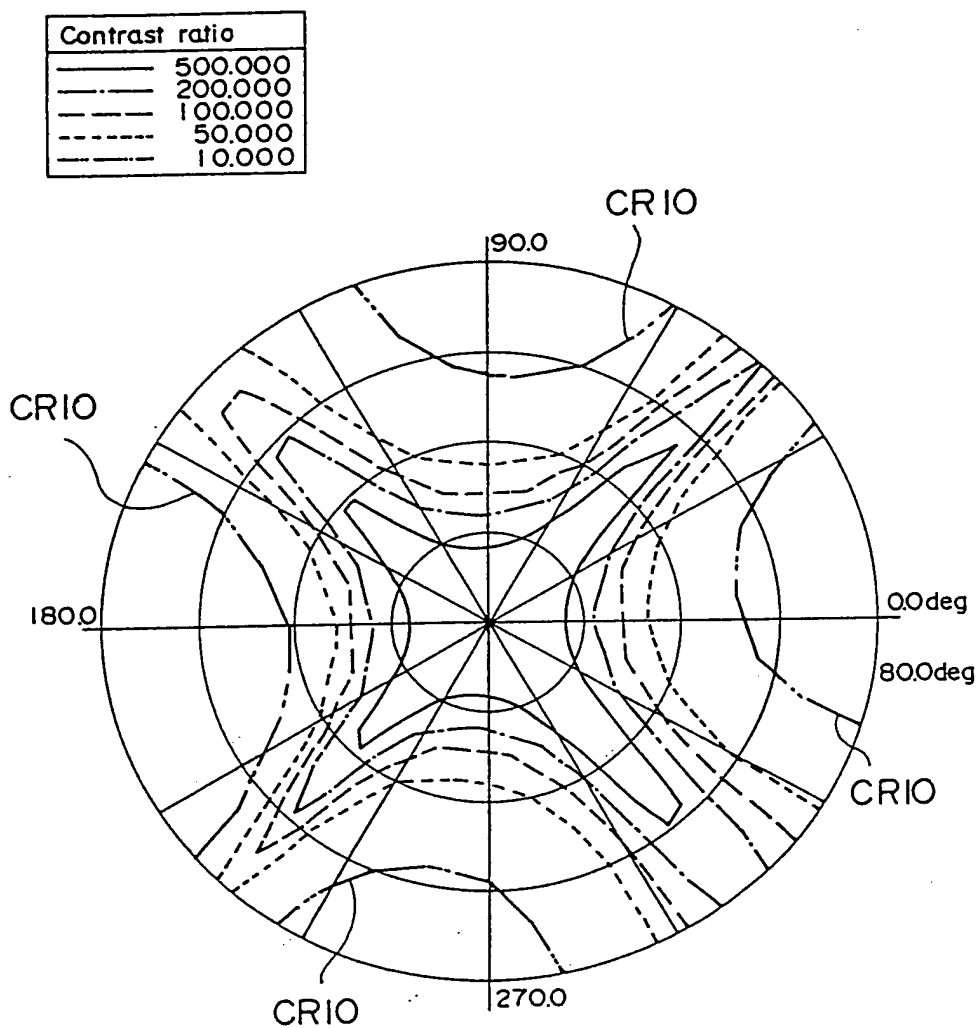
LIQUID CRYSTAL DISPLAY...
Ohmuro et al.
Greer, Burns & Crain, Ltd.
Our Ref. No. 0941.68342
Sheet 75 of 95

Div. Of Serial No. 08/939,822
(James K. Folker)
(312) 360-0080

【図 75】

FIG 75

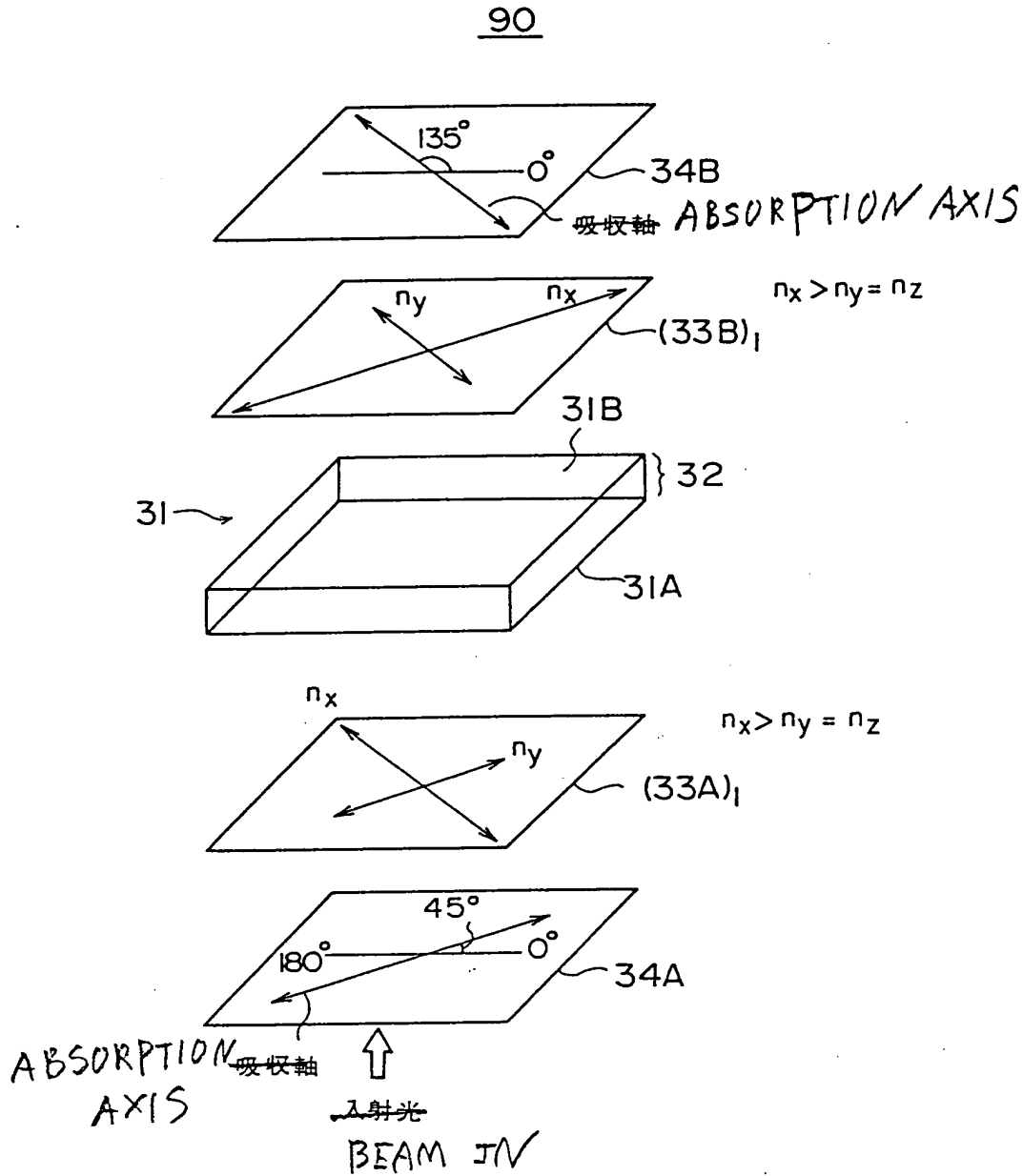
図 7 2 の液晶表示装置の視角特性を示す図



【図76】

FIG 76

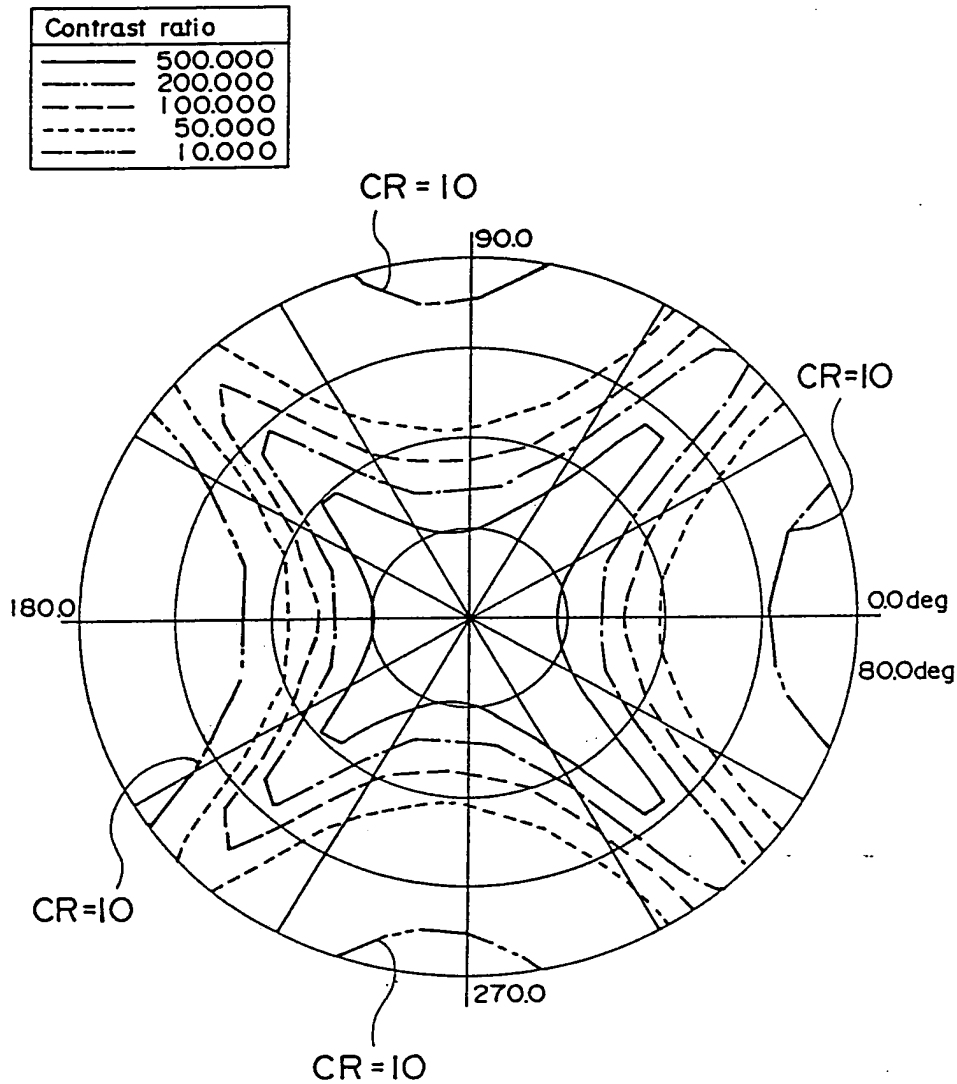
本発明の第9実施例による液晶表示装置の構成を示す図



【図 77】

FIG 77

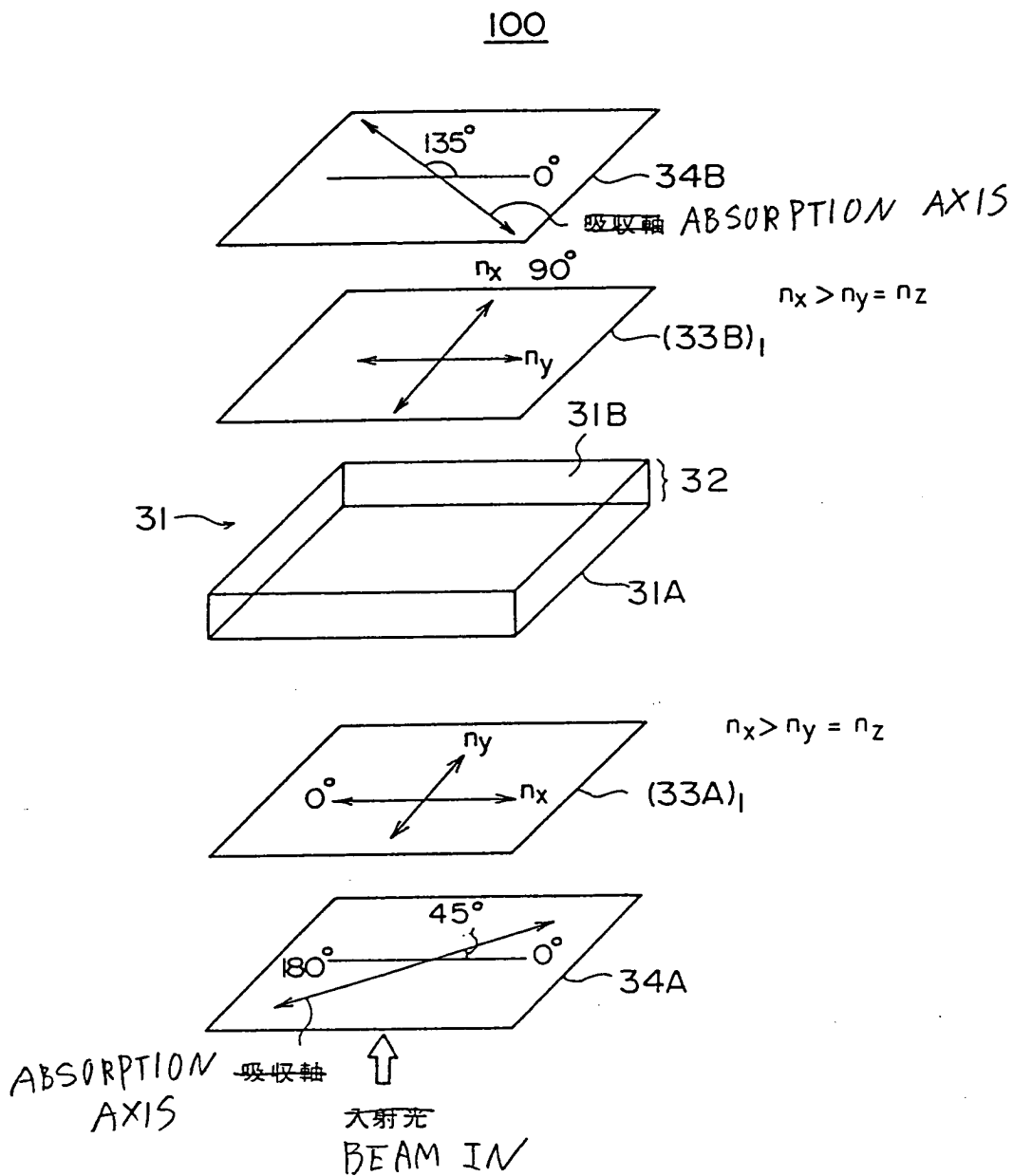
図 7 6 の液晶表示装置の視角特性を示す図



【図78】

FIG 78

本発明の第10実施例による液晶表示装置の構成を示す図



【図 79】

FIG 79

図 7 8 の液晶表示装置の視角特性を示す図

Contrast ratio	
————	500.000
— · — · —	200.000
-----	100.000
- - - - -	50.000
.....	10.000

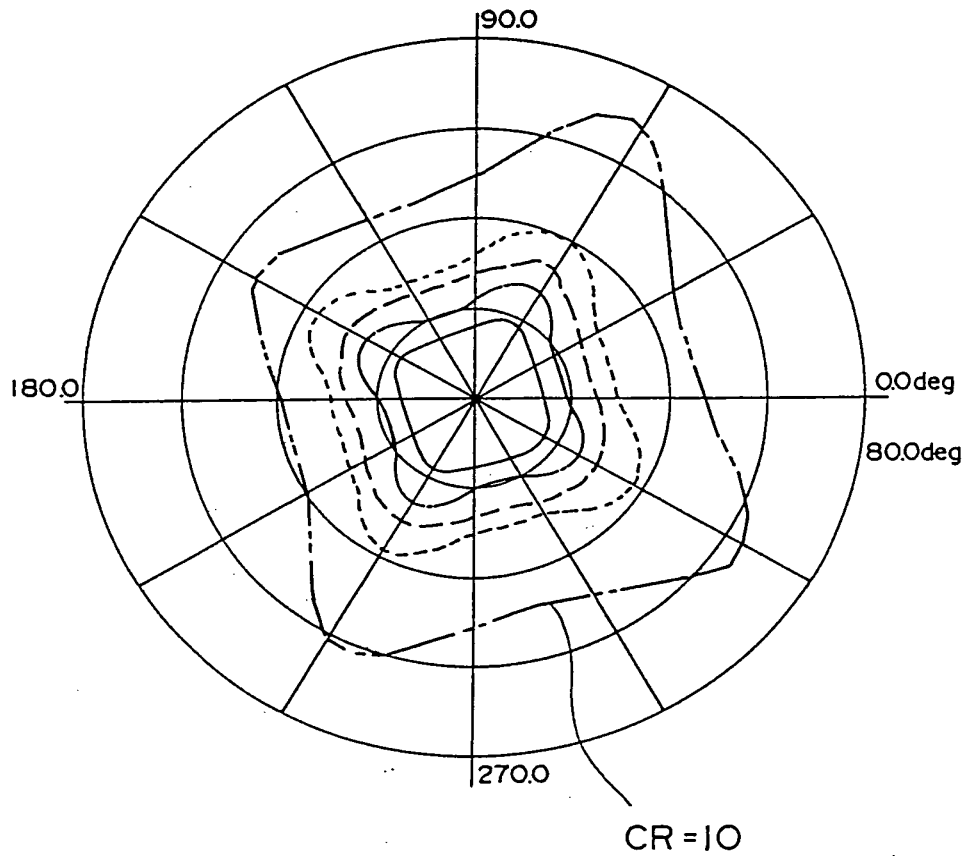


FIG 80

~~FIG. 60~~

TO 110

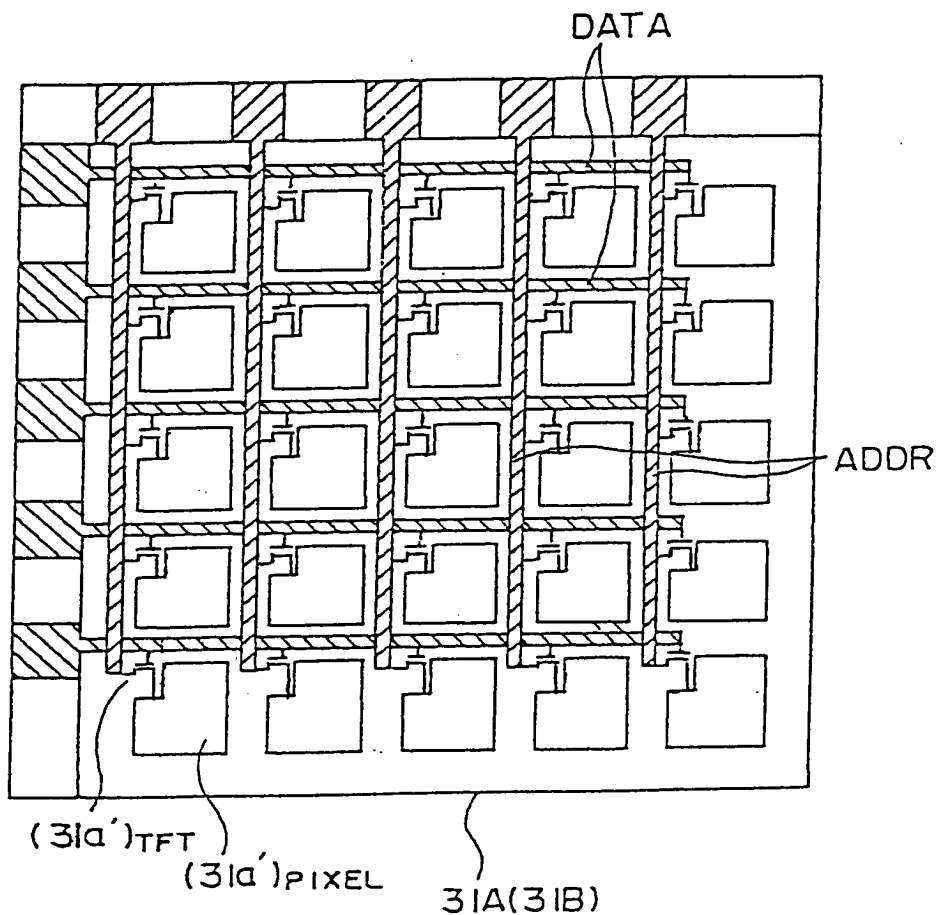
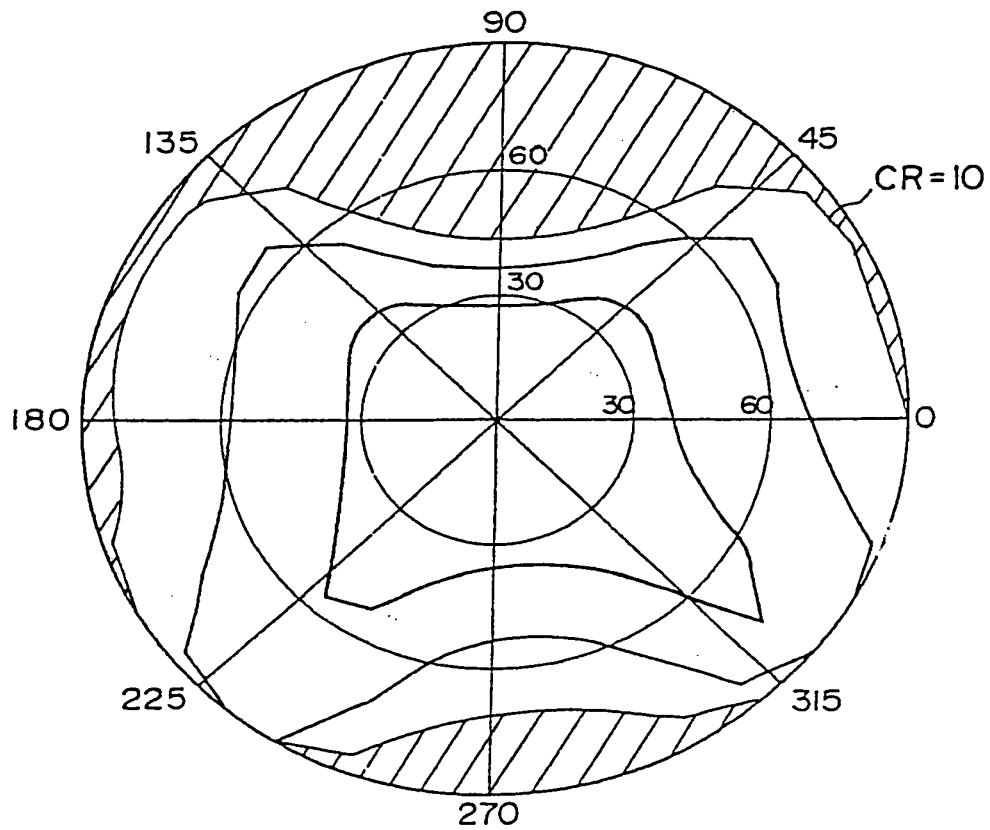
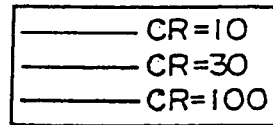
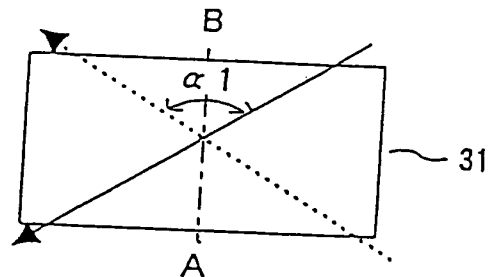


FIG 81

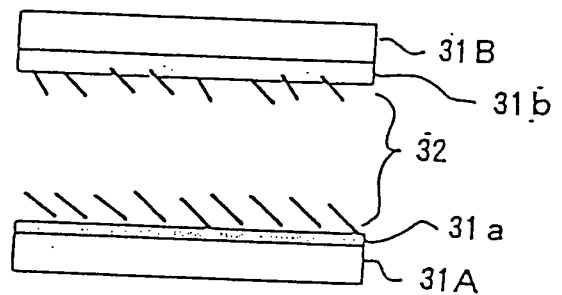
FIG. 61



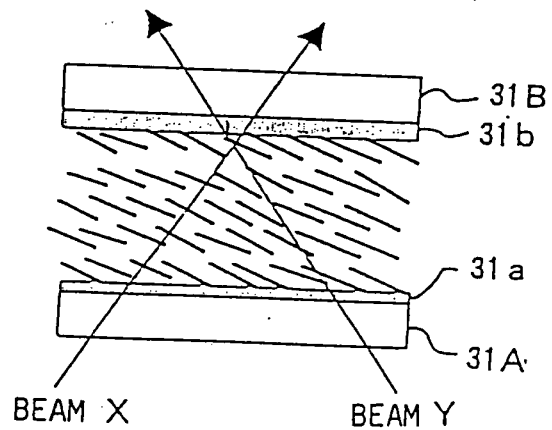
82A
FIG. 62A



82B
FIG. 62B

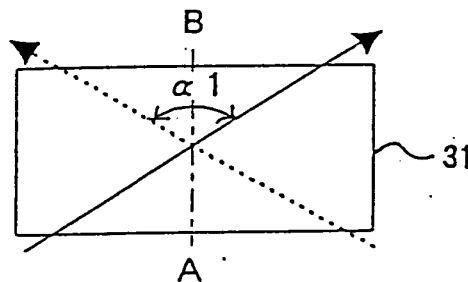


82C
FIG. 62C

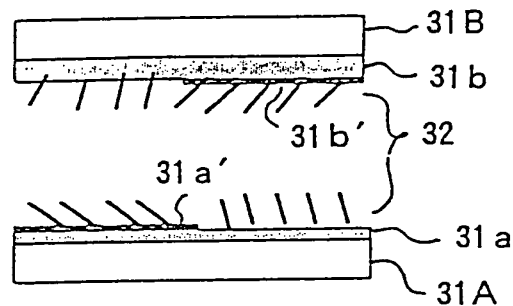


126

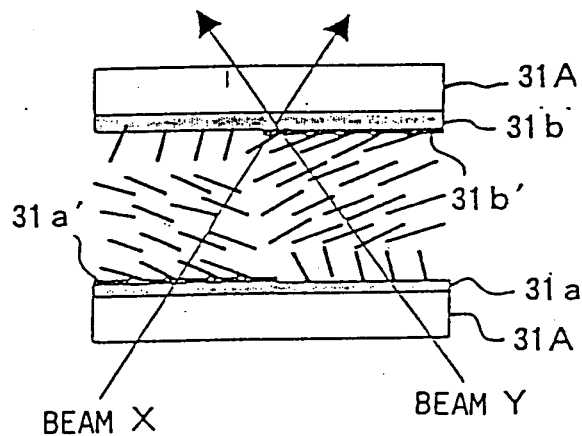
83A
FIG. 63A



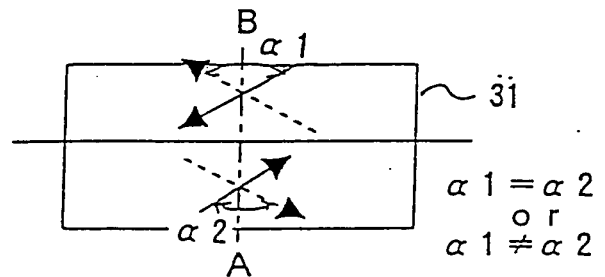
83B
FIG. 63B



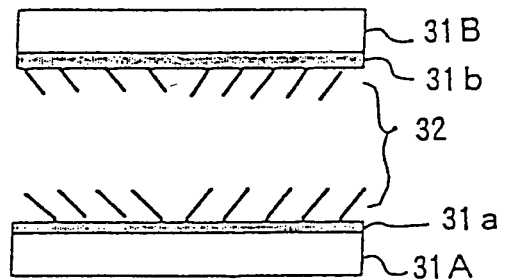
83C
FIG. 63C



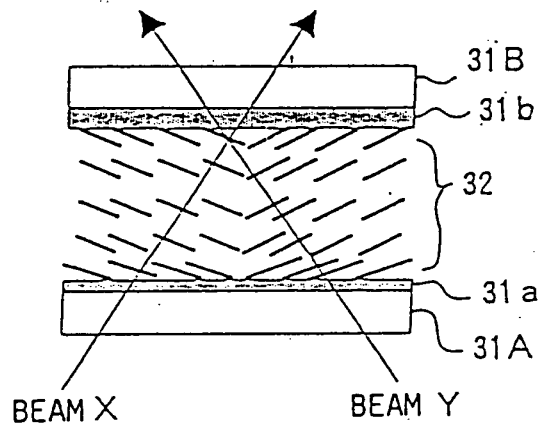
84A
 FIG. 64A



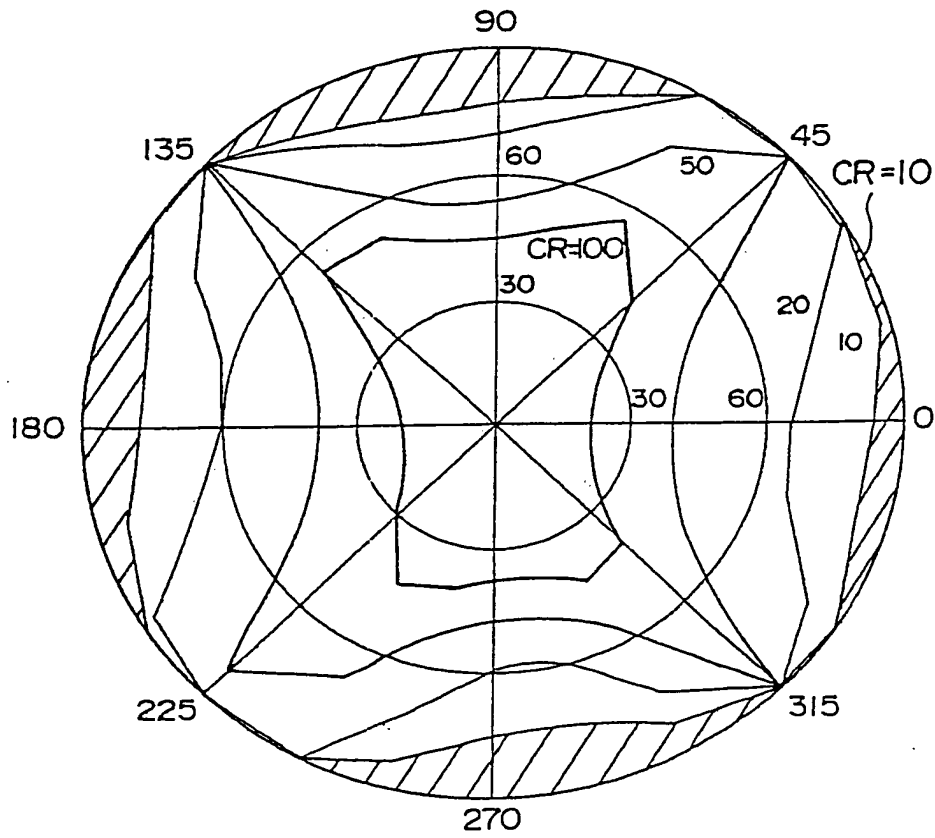
84B
 FIG. 64B



84C
 FIG. 64C

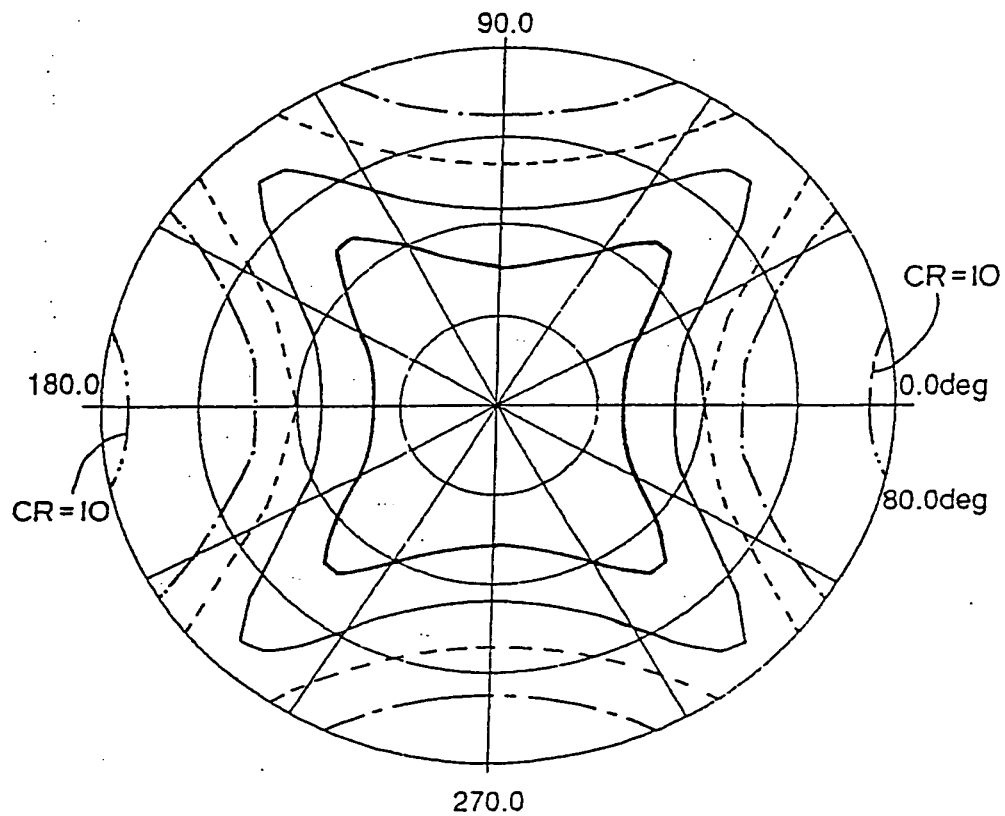


85
FIG. ~~65~~



86
FIG. 86

Contrast ratio	
————	500.000
————	200.000
-----	100.000
-----	50.000
-----	10.000



87
FIG. ~~67~~

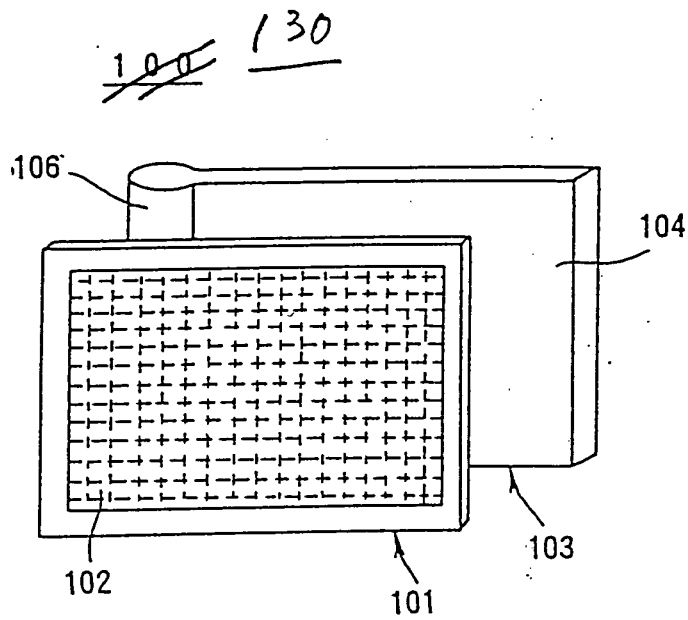
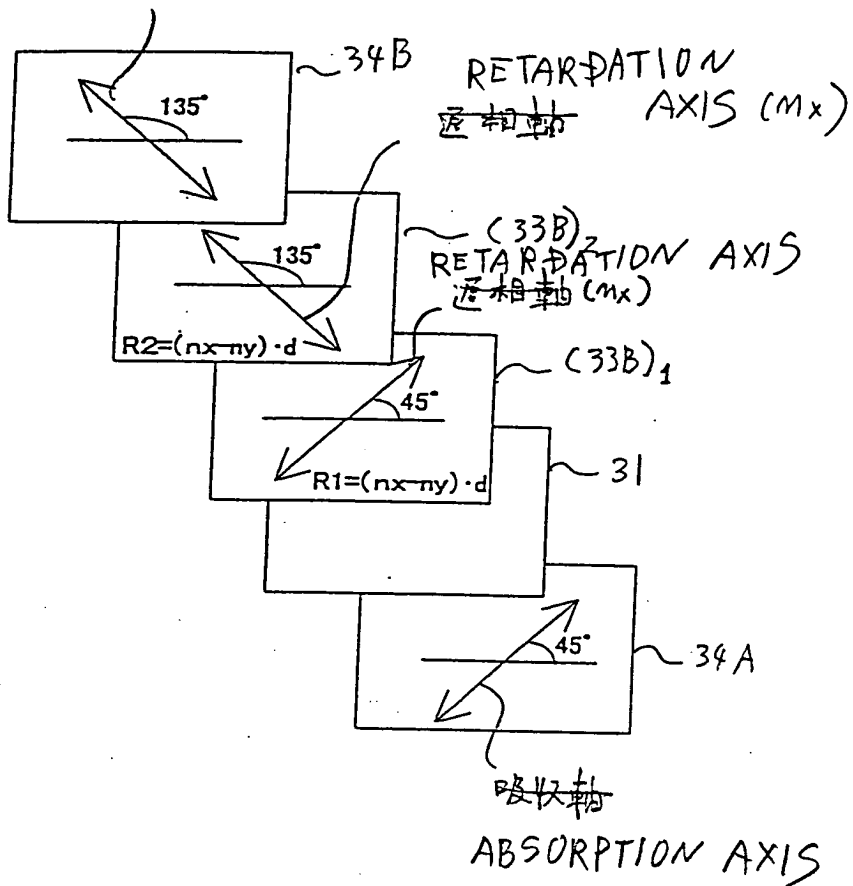


FIG 88

140

ABSORPTION AXIS

啞奴車

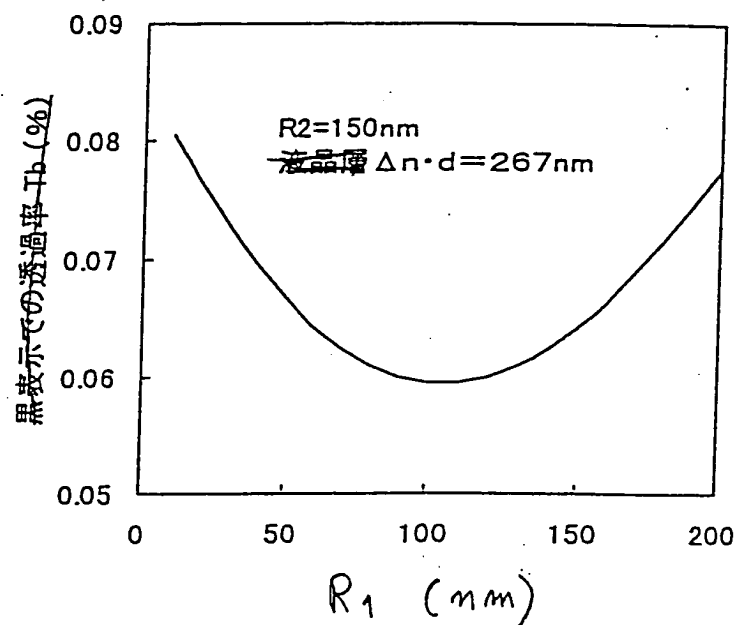


ABSORPTION AXIS

0899

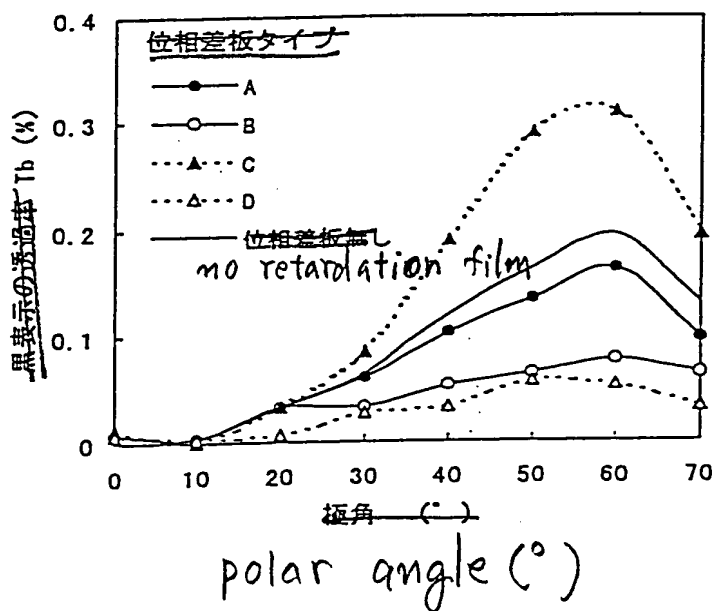
FIG 89

BLACK-MODE TRANSMITTANCE T_b (%)



[12]90]

FIG 90



[129]

FIG 91A
(A)

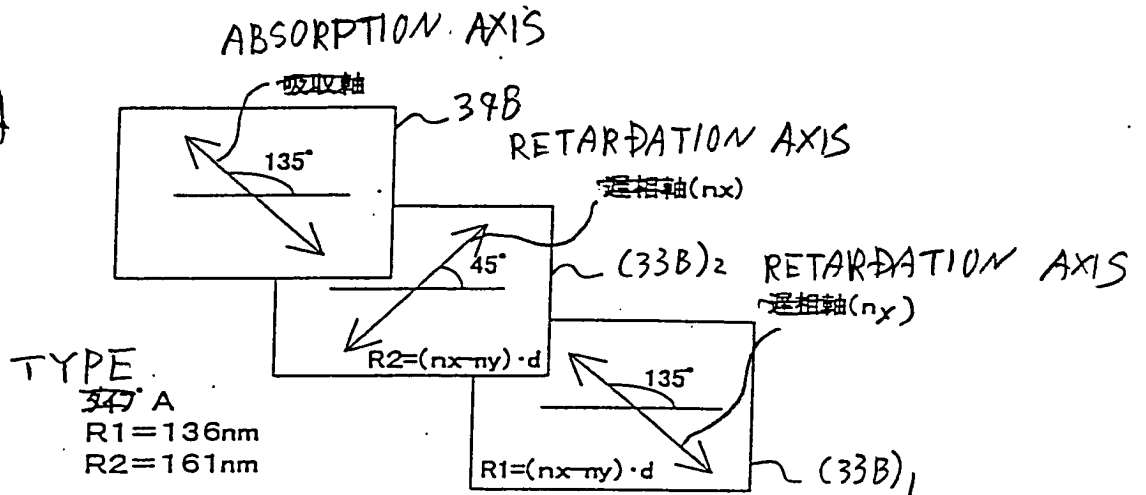
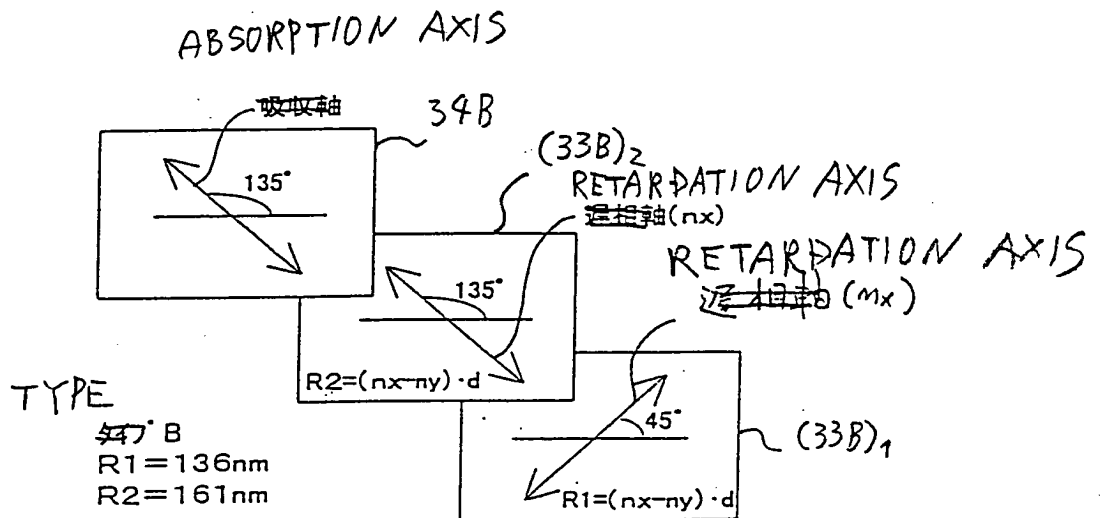


FIG 91B
(B)



[792]

FIG 91C
(C)

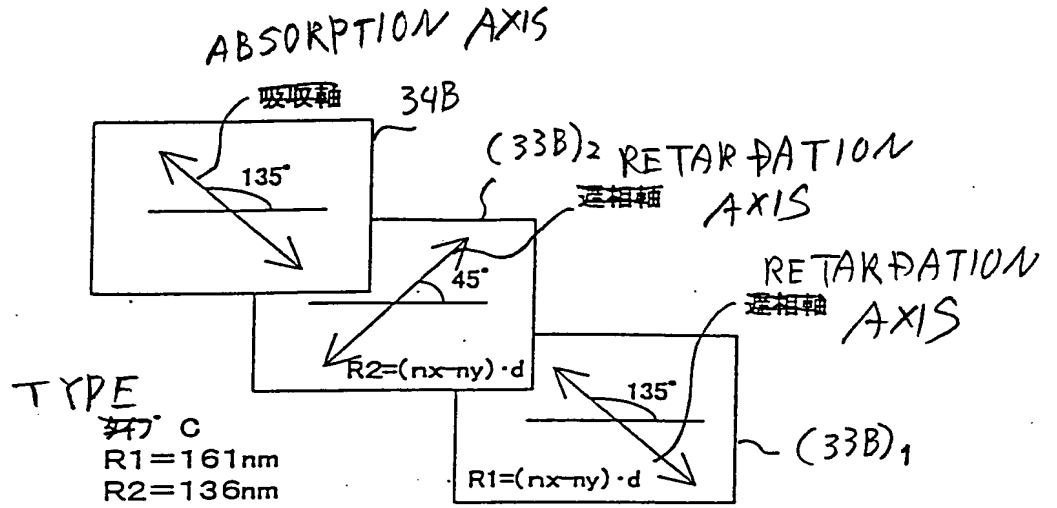
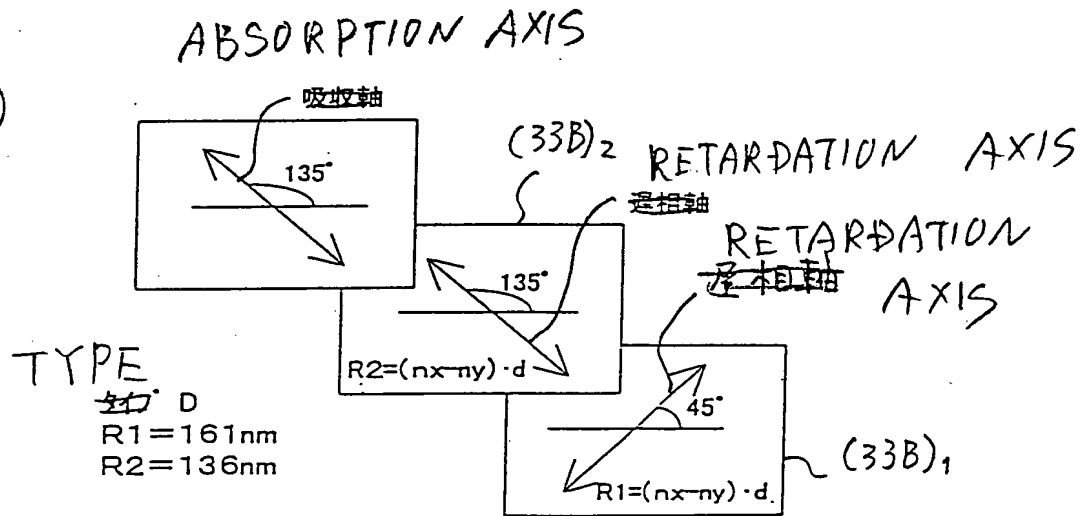


FIG 91D
(D)



[1993]

FIG 92A

(A)

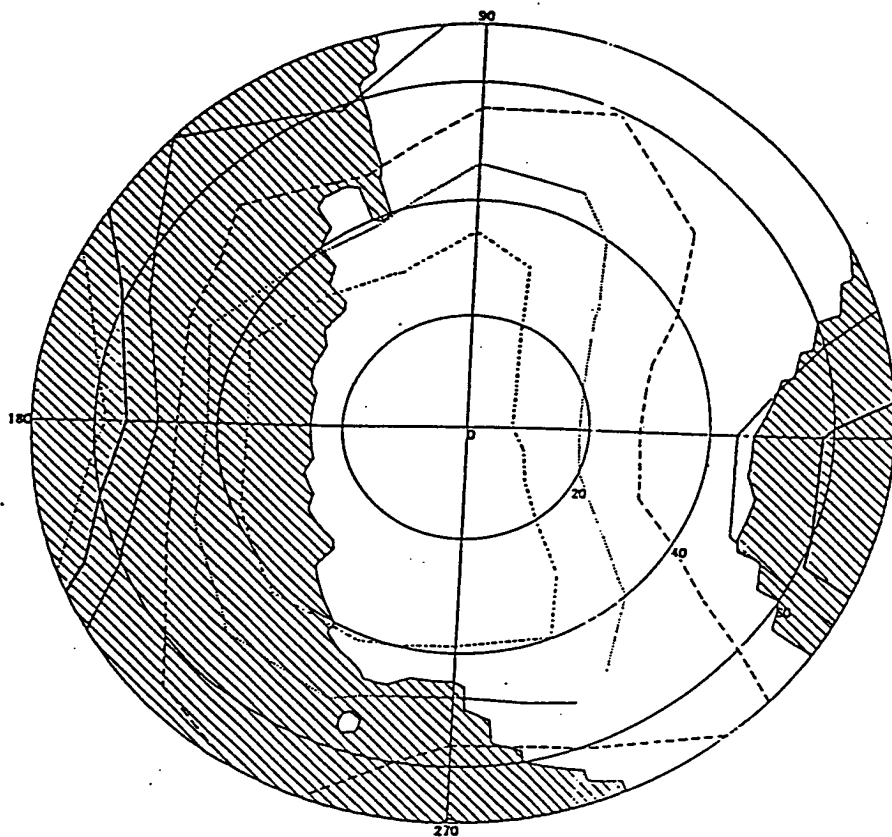
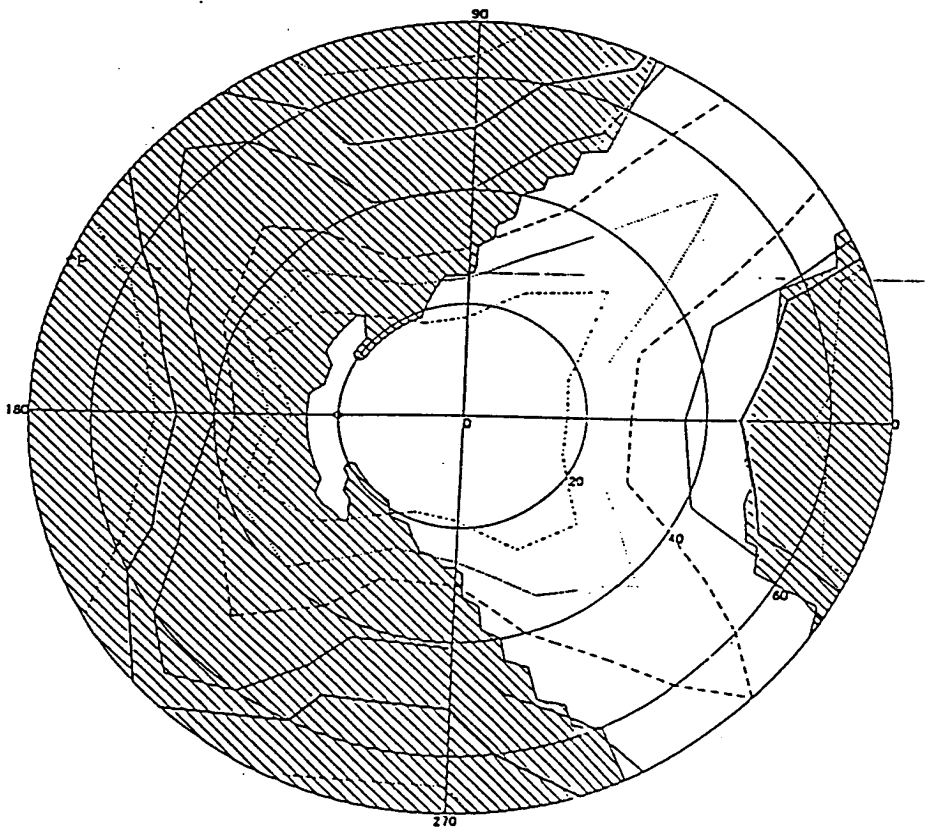


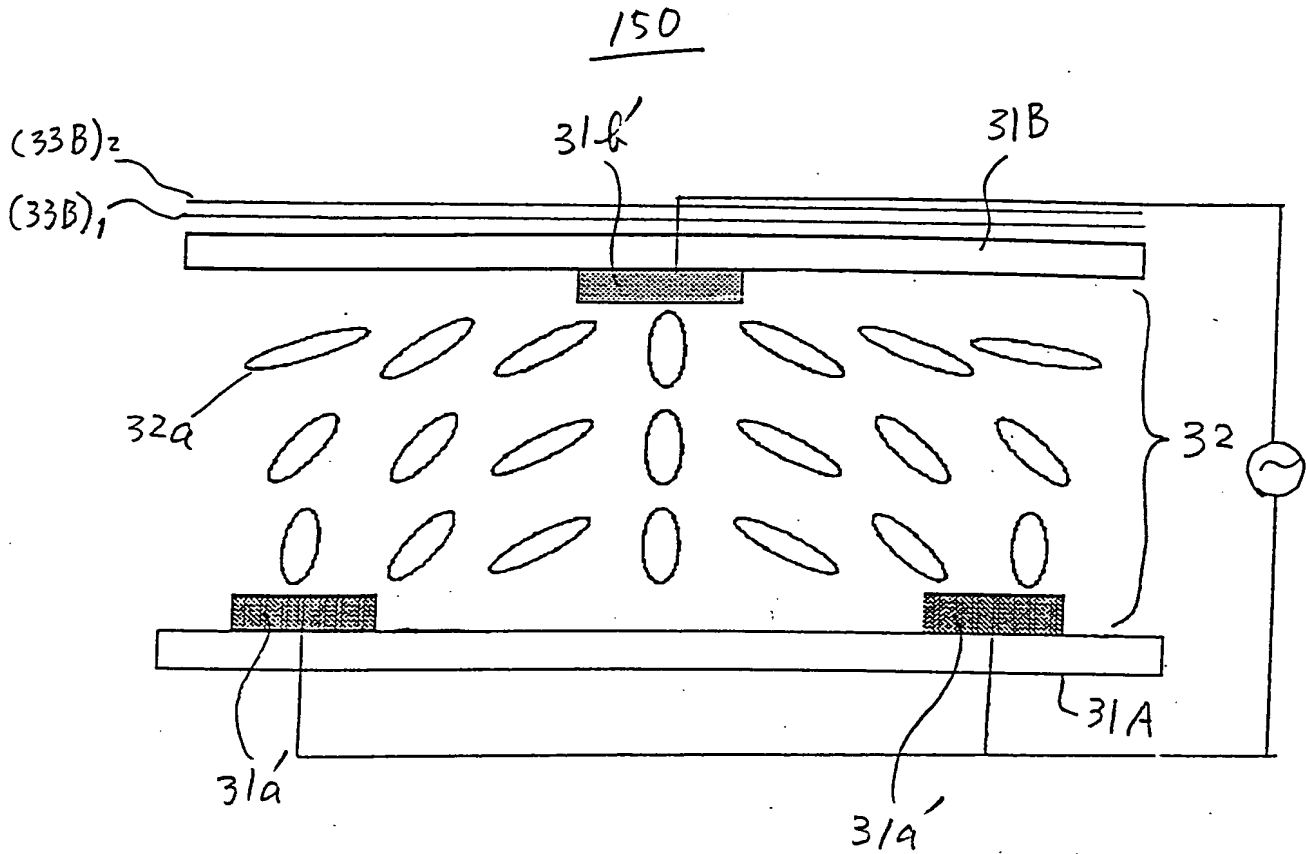
FIG 92B

(B)



[12] 94]

FIG 93



[95]

FIG 94

Contrast ratio	
—————	500.000
—————	200.000
—————	100.000
—————	50.000
—————	10.000

